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WILDLIFE REVIEW

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Except as indicated, abstracts are by Kenneth J. Chiavetta, editor, and Mary L. Llewellyn, editorial assistant.

AVAILABILITY OF REPRINTS AND PUBLICATIONS

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NATURAL RESOURCES & CLIMATE

Cain, Stanley A., chairman. MAN AND NATURE IN THE CITY. *Bur. Sport Fisheries & Wildl.* xii + 92 p., illus. 1969. For sale at $1.00 by Supt. Documents. *WR 136: 2*

A symposium sponsored by the Bureau of Sport Fisheries and Wildlife to explore the role of nature in the urban environment, held in Washington, D.C., 21-22 Oct. 1968. The following presentations were given: *Human needs and the natural environment*, Edward Stainbrook; *Nature and the urban dweller*, Frank J. Tysen; *Nature in our cities*, Philip H. Lewis, Jr.; *Meeting urban wildlife needs*, Ralph A. MacMullan; *Nature and the ghetto dweller*, Sterling Tucker; *The natural world of the new city*, Morton Hoppenfeld; *Urban youth and natural environments*, Rose Blaustein; and *Widening horizons*, John Gottschalk.

Curry-Lindahl, Kai. REPORT TO THE GOVERNMENT OF GHANA ON CONSERVATION, MANAGEMENT AND UTILIZATION OF GHANA'S WILDLIFE RESOURCES. *IUCN Publ. New Ser., Suppl. Pap.* no. 18. 28 p. 1969. *WR 136: 2*

Includes a review of land use, wildlife status, and an outline for a wildlife restoration plan.

Lime, David W., and Charles T. Cushwa. THE AESTHETIC IMPORTANCE OF WILDLIFE TO AUTO CAMPERS IN THE SUPERIOR NATIONAL FOREST. *Trans. NE Sect. Wildl. Soc., 26th NE Fish & Wildl. Conf. 9-12 Feb. 1969.* p. 1-9. 1969. *WR 136: 2*

[North Central Forest Expt. Sta., St. Paul, Minn.] Abstract: The importance and value of wildlife to the experience of visitors to recreation areas represents a challenging problem. These aesthetic values certainly are difficult to describe and even more difficult to evaluate in meaningful terms. Nonetheless, several researchers have identified this problem, but for the most part have neglected to cope with this issue face-to-face. Many professional resource managers and many administrators feel that personal contact with wildlife is rewarding for nearly all people, and that a high percentage of outdoor excursions, especially to forested areas, are pre-planned with wildlife as the prime motivational factor. Our findings did not support this generalization.

Norderhaug, Magnar. IAKTTAGELSER OVER DYRELIVET PA SVALBARD 1966. [OBSERVATIONS OF THE ANIMAL LIFE IN SVALBARD 1966.] *Norsk Polarinst. Arbok 1966*: 125-131, illus. 1968. [From Biol. Abstr. 50(3), 1969. In Norwegian.] *WR 136: 2*

Reindeer, musk-oxen, walruses, polar bears, and miscellaneous birds.

Perret, N. G. OUTLINE OF THE CANADIAN LAND CAPABILITY CLASSIFICATION FOR WILDLIFE. *Canada Land Inventory, ARDA.* 24 p. 6 Feb. 1969. *WR 136: 2*

The outline provides a description of the classes used in land capability maps being produced by the Canada Land Inventory under the Agricultural and Rural Development Act. The current land capability inventory is restricted to two main groups of species occurring across Canada: ungulates and waterfowl. Seven

capability classes are used to describe the extent of limiting enivronmental factors, from no significant limitations through severe limitations. Capability subclasses are used to indicate what factors are limiting; i.e., aridity, adverse topography, climate, inundation, or soil depth. Species of ungulates for which capability ratings are assigned include antelope, caribou, deer, elk, goat, moose, and mountain goat.

U.S. Department of the Interior. NATURAL RESOURCES OF MINNESOTA. *USDI.* 46 p., illus. 1969. For sale at 60¢ by Supt. Documents. *WR 136: 3*
With a section on fish and wildlife.

SOILS

Fisher, Charles S. SOIL SURVEY OF CLAY COUNTY, IOWA. *SCS.* i + 102 p., 12 figs. + single-fold maps based on aerial photos and bound in. Apr. 1969. Sold by Supt. Documents. *WR 136: 3*
With a section on wildlife.

Flora, Donald F., and others. SOIL SURVEY OF SCHOHARIE COUNTY, NEW YORK. *SCS.* i + 153 p., 6 figs. + single-fold maps based on aerial photos and bound in. Sept. 1969. Sold by Supt Documents. *WR 136: 3*
With a section on wildlife.

Hanson, Arthur, and others. SOIL SURVEY OF COLLIN COUNTY, TEXAS. *SCS.* i + 55 p., 21 figs. + single-fold maps based on aerial photos and bound in. June 1969. For sale by Supt. Documents. *WR 136: 3*

Lerch, Norbert K., and others. SOIL SURVEY OF PREBLE COUNTY, OHIO. *SCS.* i + 101 p., 7 figs. + single-fold maps based on aerial photos and bound in. June 1969. Sold by Supt. Documents. *WR 136: 3*
With a section on wildlife.

Matanzo, Francisco, and others. SOIL SURVEY OF DELAWARE COUNTY, OHIO. *SCS.* i + 71 p., 5 figs. + single-fold maps based on aerial photos and bound in. July 1969. Sold by Supt. Documents. *WR 136: 3*
With a section on use of soils for wildlife and fish.

Mettert, Wesley, and others. SOIL SURVEY OF OSCEOLA COUNTY, MICHIGAN. *SCS.* i + 139 p., 9 figs. + single-fold maps based on aerial photos and bound in. June 1969. Sold by Supt. Documents. *WR 136: 3*

Radeke, Robert E., and others. SOIL SURVEY OF WASHABAUGH COUNTY, SOUTH DAKOTA. *SCS.* i + 62 p., 10 figs. + single-fold maps based on aerial photos and bound in. July 1969. For sale by Supt. Documents. *WR 136: 3*
With a section on wildlife.

Schoephorster, Dale B., and others. SOIL SURVEY OF MATANUSKA VALLEY AREA, ALASKA. *SCS.* ii + 67 p., 14 figs. + single-fold maps based on aerial photos and bound in. June 1968. Sold by Supt. Documents. *WR 136: 3*
With a section on wildlife.

Taylor, David C., and others. SOIL SURVEY OF PIKE COUNTY, PENNSYLVANIA. *SCS.* i + 83 p., 9 figs. + single-fold maps based on aerial photos and bound in. June 1969. Sold by Supt. Documents. *WR 136: 3*
With a section on wildlife.

Upham, Charles W., and others. SOIL SURVEY OF PLYMOUTH COUNTY, MASSACHUSETTS. *SCS.* i + 116 p., 9 figs. + single-fold maps based on aerial photos and bound in. July 1969. For sale by Supt. Documents. *WR 136: 3*
With a section on use of soils for wildlife.

SOILS--Continued

Wallace, Donald L., and others. SOIL SURVEY OF GALLATIN COUNTY, ILLINOIS. *SCS.* i + 136 p., 18 figs. + single-fold maps based on aerial photos and bound in. Sept. 1969. Sold by Supt. Documents. *WR 136: 4*

PLANTS--GENERAL, ECOLOGY, TECHNIQUES

California Dept. Fish & Game. ATRIPLEX / A COVER PLANT FOR WILDLIFE. *Game Mgmt. Leafl.* no. 11. 11 p., [7 figs.]. Jan. 1969. *WR 136: 4*
[1416 9th St., Sacramento, Calif.] For rabbits, deer, and a number of birds and small mammals.

PLANTS--FLORAS, COMMUNITIES, TAXONOMY

Core, Earl L. VEGETATION OF WEST VIRGINIA. *McClain Printing Co.* (Parsons, W. Va.). 217 p., 66 figs. 1966. Price $6.00. *WR 136: 4*
[W. Va. Univ., Morgantown.] Because of its geographic position and physiography, West Virginia has a wider variety of plant communities than most of the eastern states. The state has spruce forests, oak-pine forests, stands of northern hardwoods, mixed hardwoods, swamps, bogs, bald mountains, shale barrens, and floodplains. The rich variety of plant life has attracted botanists for years, and much of the vegetation has been studied and recorded. This book is intended as a companion for the larger work, *Flora of West Virginia*, by E. L. Core and P. D. Strausbaugh (now deceased). The "flora" is the total catalog of species; the "vegetation" has to do with combinations of species in communities, and with their relative abundance. Core discusses the geological history of the state and the present geophysical conditions which have encouraged the establishment of Arctic, Prairie, and Atlantic Coastal species in this Appalachian stronghold. The forest types and treeless areas are discussed, as well as aquatic vegetation, secondary succession, seasonal botany, and plant migration. Many of the plants mentioned in the text are illustrated with drawings from *Flora of West Virginia*. The book provides a good basic understanding of plant associations in West Virginia and how they evolved.

WILDLIFE--BIOTAS, ECOLOGY, NATURAL HISTORY

Fullagar, P. J., editor. AUSTRALIAN ECOLOGICAL REFERENCES 1966. *Proc. Ecol. Soc. Australia* 2: 191-206. 1967. *WR 136: 4*
[CSIRO Div. Wildl. Res., Canberra, Australia.] References grouped under botany, forestry, agriculture, freshwater and marine, entomology, herpetology, ornithology, and mammalogy.

Legendre, Roland. LE PEOPLEMENT DE L'ÎLE EUROPA. [POPULATION OF EUROPA ISLAND.] *Mem. Mus. Natl. Hist. Nat. Ser. A Zool.* 41. p. 213-220. 1966. [From Biol. Abstr. 50(11), 1969. In French.] *WR 136: 4*
[Fac. Sci., Montpellier, France.] Animals introduced by man, migratory animals, and true natives are discussed.

Malzy, Pierre. OISEAUX ET MAMMIFÈRES DE L'ÎLE EUROPA. [BIRDS AND MAMMALS OF THE ISLAND OF EUROPE (MADAGASCAR).] *Mem. Mus. Natl. Hist. Nat. Paris Ser. A Zool.* 41. p. 23-27. 1966. [From Biol. Abstr. 50(9), 1969. In French.] *WR 136: 4*

Rousseau, Jacques, and Vianney Legendre. LES ANIMAUX DU CANADA EN 1664: LA FAUNE INDIGÈNE. POISSONS, BACTRACIENS, CRUSTACÉS, INSECTES ET MOLLUSQUES. [THE ANIMALS OF CANADA IN 1664: THE INDIGENOUS FAUNA. FISH, AMPHIBIANS, CRUSTACEANS, INSECTS AND MOLLUSKS.] *Québec Serv. Faune Bull.* 8: 302-335, illus. 1966. [From Biol. Abstr. 50(5), 1969. In French.] *WR 136: 5*

Descriptions are given, quoting from the original work (1664), of eland, caribou, deer, bear, bison, wolf, fox, wolverine, marten, wildcat, porcupine, hare, squirrels, beaver, otter, muskrat, and various other small mammals; also about 35 spp. of birds, about 20 spp. of fish, the rattlesnake, and a few species of amphibians, crustaceans, and mollusks.

Sultanov, F. F. [QUESTIONS ON THE ADAPTATION OF THE ANIMAL ORGANISM TO AN ARID CLIMATE.] *Probl. Osvoeniya Pustyn.* 5: 88-93. 1967. [From Biol. Abstr. 50 (5), 1969, from Referat. Zhur., Biol., 1968, no. 5N222. In Russian.] *WR 136: 5*

Tomich, P. Quentin, Nixon Wilson, and Charles H. Lamoureux. ECOLOGICAL FACTORS ON MANANA ISLAND, HAWAII. *Pacific Sci.* 22(3): 352-368, illus. 1968. [From Biol. Abstr. 50(4), 1969.] *WR 136: 5*

[Plague Res. Unit, State Dept. Health, Honekaa, Hawaii.] Nesting sea birds, feral rabbits, and house mice. Biological and food data are included for both species of mammals.

WILDLIFE--MORPHOLOGY, PHYSIOLOGY, BEHAVIOR, MIGRATION

Chitty, Dennis. THE NATURAL SELECTION OF SELF-REGULATORY BEHAVIOR IN ANIMAL POPULATIONS. *Proc. Ecol. Soc. Australia* 2: 51-78, 9 figs. 1967. *WR 136: 5*

[Univ. British Columbia, Vancouver, Canada.]

Schultze-Westrum, T.-G. BIOLOGISCHE GRUNDLAGEN ZUR POPULATIONSPHYSIOLOGIE DER WIRBELTIERE. [BIOLOGICAL BASES OF THE POPULATION PHYSIOLOGY OF VERTEBRATES.] *Naturwissenschaften* 54(22): 576-579. 1967. [From Biol. Abstr. 50(1), 1969. In German.] *WR 136: 5*

[Univ. Munich, Munich, Germany.]

WILDLIFE--EFFECTS OF CHEMICALS, WEATHER, CARS, ETC.

Anonymous. THE FATE OF ORGANOCHLORINE RESIDUES IN THE ANIMAL. *World Rev. Pest Control* 6(3): 71. 1967. [From Biol. Abstr. 50(5), 1969.] *WR 136: 5*

Residues of HEOD remained in the fat, liver, muscle, and brain of pigeons for six months.

French, M. C., and D. J. Jefferies. DEGRADATION AND DISAPPEARANCE OF ORTHO, PARA ISOMER OF TECHNICAL DDT IN LIVING AND DEAD AVIAN TISSUES. *Science* 165(3896): 914-916. 29 Aug. 1969. *WR 136: 5*

[Monks Wood Exptl. Sta., Nature Conservancy, Abbots Ripton, Huntingdonshire, England.]

Johnson, Eric V. ROBIN-PESTICIDE RELATIONSHIPS IN AN ORCHARD. *Trans. NE Sect. Wildl. Soc., 26th NE Fish & Wildl. Conf. 9-12 Feb. 1969.* p. 175-179. 1969. *WR 136: 5*

[N.Y. Coop. Wildl. Res. Unit, Ithaca.] Abstract: This investigation examined the reproductive success and the behavior patterns of robins *(Turdus migratorius)* nesting in an apple orchard sprayed heavily with persistent chlorinated hydrocarbons. Samples of soil, ground-dwelling invertebrates, and resident robins were analyzed for pesticidal residues. Orchard soil residues were high. Invertebrate populations were sparse. Experimental evidence suggests that worms, a robin prime food source, cannot survive in this orchard soil. Adult robins foraged in marginal areas where spray residues in the soil were low and where invertebrates were abundant. Pesticidal residues in adult and nestling robins were generally low, showing only slight increases through the breeding season. Reproductive success was comparable with that of robins in non-orchard habitats.

Kenaga, Eugene E., and William E. Allison. COMMERCIAL AND EXPERIMENTAL ORGANIC INSECTICIDES (1969 REVISION). INDEXED AS TO THEIR SCIENTIFIC, COMMON AND TRADE NAMES, CODE DESIGNATIONS, USES, EMPIRICAL FORMULAS, MANUFACTURERS, MAMMALIAN TOXICOLOGY AND CHEMICAL STRUCTURES. *Bull. Entomol. Soc. Am.* 15(2): 85-148. June 1968. Reprints available at $1.50 from the Entomological Society of America, 4603 Calvert Rd., College Park, Md. 20740. *WR 136: 6*
[Dow Chemical Co., Midland, Mich.]

Lehner, Philip Nelson. THE EFFECT OF DIELDRIN ON THE COLOR VISION OF JUVENILE MALLARDS. *Ph.D. thesis, Utah State Univ.* viii + 76 p., 11 figs. 1969. *WR 136: 6*
Juvenile mallards from populations receiving long term doses of dieldrin in their feed, as high as 10 ppm, showed no gross measurable loss of color vision. Treatment doses approximating the LD_{50}, when fed to juveniles, did not measurably disrupt their color vision. There was a significant difference (.05 level) in the overall storage of dieldrin in the brain between groups of ducks fed 50 ppm for 2 months and controls (fed no dieldrin); a difference between ducks fed 10 ppm and controls approaches significance at the .10 level, but the 4 ppm group did not even approach significance at either the .05 or .10 levels.--From concl.

McFarland, Larry Z., and Paula B. Lacy. PHYSIOLOGIC AND ENDOCRINOLOGIC EFFECTS OF THE INSECTICIDE KEPONE IN THE JAPANESE QUAIL. *Toxicol. & Appl. Pharmacol.* 15 (2): 441-450, 4 figs. Sept. 1969. *WR 136: 6*
[Univ. Calif., Davis.] Abstract: Japanese quail fed Kepone (chlordecone) developed a characteristic whole-body tremor prior to death. Hepatic enlargement, often twice the size of controls, was the most characteristic abnormality observed in both sexes. The hepatic cell had accumulated numerous lipid vacuoles and possessed a fatty appearance. Kepone exerted a strong "estrogenic" effect on the oviduct of the quail, most noticeable in the immature female. Not only was a direct "estrogenic" effect on the quail oviduct demonstrated but also a possible indirect effect operating via the hypothalamoadenohypophyseal axis. The hematocrit was lowered, and the refractive index was elevated. The width of the cloacal gland was reduced, and the testes were affected in an unpredictable manner.

Persson, Berith. NAGOT OM TORNSANGARENS *(SYLVIA COMMUNIS)* HACKNINGSRESULTAT I BIOCIDBEHANDLAD MILJO. [ABOUT THE BREEDING RESULT OF WHITETHROAT *(SYLVIA COMMUNIS* LATH.*)* IN HABITATS TREATED WITH BIOCIDES.] *Vår Fågelvärld* 27(3): 231-243, illus. 1968. [From Biol. Abstr. 50(11), 1969. In Swedish with English summ.] *WR 136: 6*

Porter, Richard D., and Stanley N. Wiemeyer. DIELDRIN AND DDT: EFFECTS ON SPARROW HAWK EGGSHELLS AND REPRODUCTION. *Science* 165(3889): 199-200. 11 July 1969. *WR 136: 6*
[Patuxent Wildl. Res. Center, Laurel, Md.] Abstract: Patterns of reproductive failure in declining populations of several European and North American raptorial species were duplicated experimentally with captive American sparrow hawks *Falco sparverius* that were given a diet containing two commonly used organochlorine insecticides. Major effects on reproduction were increased egg disappearance, increased egg destruction by parent birds, and reduced eggshell thickness.

Wanntorp, H., K. Borg, E. Hanko, and K. Erne. MERCURY RESIDUES IN WOOD-PIGEONS *(COLUMBA P. PALUMBUS* L.*)* IN 1964 AND 1966. *Nordisk Vet. Med.* 19(10): 474-477. 1967. [From Biol. Abstr. 50(3), 1969. In English with German and Swedish summ.] *WR 136: 6*
[Nat. Vet. Inst., Stockholm, Sweden.]

WILDLIFE--PARASITES & DISEASES

Almăsan, H., V. Nesterov, I. Ciolofan, and L. Manolache. L'ECHINOCOCCOSE CHEZ LES ANIMAUX SAUVAGES ET LE RÔLE DE CES DERNIERS DANS LA PÉRSISTANCE DE LA PARASITOSE. [ECHINOCOCCOSIS IN WILD ANIMALS AND THE ROLE OF THE LATTER IN THE PERSISTANCE OF THE PARASITIC DISEASE.] *7th Congres Biol. Gibier (Belgrade) Sept. 1965.* p. 435-441. 1967. In French with Russian summ. *WR 136: 7*
[Inst. Forest Res., Bucharest, Romania.]

Haaften, J. van, F. G. Poelma, and P. Zwart. *"PASTEURELLA PSEUDOTUBERCULOSIS"* PARMI LE GIBIER DANS LES PAYS-BAS. [*"PASTEURELLA PSEUDOTUBERCULOSIS"* IN GAME OF THE LOW COUNTRIES.] *Intern. Symposium Pseudotuberculosis Paris 1967, Symp. Ser. Immunobiol. Standard* 9: 117-120. 1968. In French with English summ. *WR 136: 7*
[ITBON, Arnhem, Netherlands.] "In the hare, the roebuck, the ringdove, the stag, the mufflon and the rabbit."

Keahey, K. K., and A. L. Trapp. DIAGNOSES AND CLASSIFICATIONS OF DISEASES OF EXOTIC ANIMALS. *J. Am. Vet. Med. Assoc.* 155(7): 1136-1140. Oct. 1969. *WR 136: 7*
[Mich. State Univ., East Lansing.]

WILDLIFE--POPULATIONS & FLUCTUATIONS

Almăsan, H. A. CONTRIBUTION À LA CONNAISSANCE DE LA FLUCTUATION DES POPULATIONS DANS LES ESPÈCES D'INTÈRÊT CYNÉGÉTIQUE EN ROUMANIE. [CONTRIBUTION TO THE KNOWLEDGE OF POPULATION FLUCTUATION AMONG GAME ANIMALS IN ROMANIA.] *7th Congres Biol. Gibier (Belgrade) Sept. 1965.* p. 56-64, 10 figs. 1967. In French with Russian summ. *WR 136: 7*
[Inst. Forest Res., Bucharest, Romania.] Woodcock, gray squirrel, wild boar, chamois, wolf, muskrat, hare, fox and polecat.

Burov, V. N. [POPULATION DENSITY AS A FACTOR OF POPULATION DYNAMICS.] *Zool. Zhur.* 47(10): 1445-1461. 1968. [From Biol. Abstr. 50(11), 1969. In Russian with English summ.] *WR 136: 7*
Optimal limits of population density exist for each species. Deviations outside these limits negatively influence the rate of growth of populations.

Naumov, N. P. [POPULATION STRUCTURE AND DYNAMICS IN NUMBERS OF TERRESTRIAL VERTEBRATES.] *Zool. Zhur.* 46(10): 1470-1486. 1967. [From Biol. Abstr. 50(2), 1969. In Russian with English summ.] *WR 136: 7*

WILDLIFE--TECHNIQUES

Barwick, R. E., and P. J. Fullagar. A BIBLIOGRAPHY OF RADIO TELEMETRY IN BIOLOGICAL STUDIES. *Proc. Ecol. Soc. Australia* 2: 27-49. 1967. *WR 136: 7*
[Australian Natl. Univ., Canberra, Australia.] A bibliography of 431 references divided into two sections. One section relates to wildlife tracking and the other to all other aspects of radio telemetry in biological and medical research.

Fullagar, P. J. THE USE OF RADIO TELEMETRY IN AUSTRALIAN BIOLOGICAL RESEARCH. *Proc. Ecol. Soc. Australia* 2: 16-26, 1 fig. 1967. *WR 136: 7*
[CSIRO Div. Wildl. Res., Canberra, Australia.] An appraisal of the use of radio telemetry on a wide range of species--from elephant seals to ants--in Australia.

Patton, David R., Robert T. Dickie, Erwin L. Boeker, and Virgil E. Scott. A TRANSMITTER FOR TRACKING WILDLIFE. *US Forest Serv. Res. Note RM* 114: 1-4, illus. 1968. [From Biol. Abstr. 50(5), 1969.] *WR 136: 7*
[Ariz. State Univ., Tempe.]

Sokolov, V. E., and N. S. Stepanov. [RADIOTELEMETRY IN ANIMAL ECOLOGY. RADIO-TRACKING OF ANIMALS. I.] *Zool. Zhur.* 47(1): 20-35, illus. 1968. [From Biol. Abstr. 50(11), 1969. In Russian with English summ.] *WR 136: 8*

Sokolov, V. E., and N. S. Stepanov. [RADIOTELEMETRY IN ANIMAL ECOLOGY. RADIO-TRACKING OF ANIMALS (RABBIT, PHEASANT, DEER, RACCOON, DUCK). II.] *Zool. Zhur.* 47(2): 173-186, illus. 1968. [From Biol. Abstr. 50(7), 1969. In Russian with English summ.] *WR 136: 8*

[Inst. Evol. Morphol. Ecol. Anim., Acad. Sci. USSR, Moscow, USSR.] A review is given of mainly foreign investigations on applying this method for tracking terrestrial, subterranean, swimming, and flying animals. Schemes of the transmitters, receivers and aerials are described which are used for observations on daily and seasonal migrations of animals.

WILDLIFE--MANAGEMENT & RESEARCH, GENERAL

Belkov, G., editor. PROBLEMS OF THE NORTH / TRANSLATION OF "PROBLEMY SEVERA" NO. 11, 1967. *Published in English translation by the National Research Council of Canada.* iii + 326 p. June 1968. Russian original published by Academya Nauk SSSR. [Translation available at $7.00 from the Translations Section, National Science Library, National Research Council, Ottawa 7, Canada. Single papers at $1.00.] *WR 136: 8*

Twenty-eight papers "devoted to the biological and ecological bases for the proper utilization, reestablishment, and conservation of wildlife (fur-bearing animals, marine mammals, fish and game birds). It contains much original data on the biology and ecology of individual species (including the polar bear, arctic fox, wild reindeer, and mountain sheep). This research work is also of importance with respect to zoo-geography. A substantial part of this issue is devoted to marine mammals and problems associated with the harvesting of marine mammals." Individual papers are listed in this issue of *Wildlife Review.*

Canadian Wildlife Service, Department of Indian Affairs and Northern Development. TRANSACTIONS OF THE THIRTY-SECOND FEDERAL-PROVINCIAL WILDLIFE CONFERENCE HELD IN WHITEHORSE, Y.T., JULY 9 TO 11, 1968. *Queen's Printer* (Ottawa). 87 p., [5 figs.]. 1968. *WR 136: 8*

The following papers were presented: *The Canadian Wildlife Federation*, R. Passmore; *The National Committee on Wildlife*, Nicholas Novakowski; *The export-import convention*, Nicholas Novakowski; *Humane trapping*, Nicholas Novakowski; *Collection of whooping crane eggs from Wood Buffalo National Park*, Ernest Kuyt; *Big game in the Mackenzie Mountains, Northwest Territories*, N. M. Simmons; *Grizzly bears in the Yukon Territory*, A. M. Pearson; *Wildlife damage legislation in Alberta*, S. B. Smith; *The Canada migratory game bird hunting permit and related surveys*, D. A. Benson; *Canadian Fur Council*, D. H. Gimmer; *Economic evaluation of wildlife development projects through benefit-cost analysis*, Peter H. Pearse and G. Bowden; *Performance indicators and program evaluation for wildlife management*, J. M. Wright; and *Program planning and budgeting for wildlife management programs--the federal experience*, F. H. Schultz.

ITBON. ANNUAL REPORT / ITBON IN 1966. *Inst. Toegepast Biologisch Onderzoek Natuur* [*Inst. Biol. Field Res.*] (Arnhem, Netherlands) *Mededeling* no. 82. 80 p., illus. 1967. In Dutch with English summ. *WR 136: 8*

[Kemperbergerweg 11, Arnhem, Netherlands.] Studies are being conducted in several areas, some of which would be of interest to wildlifers: control of starlings and sparrows, side effects of chemical control on game, feeding experiments with roe deer and red deer, census of the common seal, pheasant population survey, waterfowl banding, spread of rabies, and introductory research on hare populations.--From summ.

ITBON. ANNUAL REPORT / ITBON IN 1967. *Inst. Toegepast Biologisch Onderzoek Natuur* [*Inst. Biol. Field Res.*] (Arnhem, Netherlands) *Mededeling* no. 90. 77 p., illus. 1968. In Dutch with English summ. *WR 136: 9*

[Kemperbergerweg 11, Arnhem, Netherlands.] Reports on continuing studies, some of which are relevant to wildlife research: repulsion of birds with distress and alarm calls, side effects of organochlorine pesticide seed dressings on birds, feeding experiments with red deer and roe deer, census of the common seal, census and banding of waterfowl, and age composition and mortality of populations of *Lepus europaeus*.--From summ.

WILDLIFE--HUNTING AREAS & PROBLEMS

Copelin, Farrell, John Price, and Victor Lambou. HUNTING AND FISHING ON PRIVATE LAND IN OKLAHOMA IN 1964. *Proc. Okla. Acad. Sci.* 47: 385-393. 1968. [From Biol. Abstr. 50(8), 1969.] *WR 136: 9*

[Okla. Conserv. Dept., Oklahoma City.]

Voilochnikov, A. T. TYPES AND CHARACTERISTICS OF TUNDRA HUNTING RANGES IN THE VICINITY OF THE VASHUTKINY LAKES. *Problems of the North* (11): 73-79. June 1968. *WR 136: 9*

Transl. of Problemy Severa (11): 63-69. 1967. [See Belkov, *WR 136: 8*, as to availability of this translation from the Russian.]

WILDLIFE--INTRODUCTIONS

Laycock, George. THE ALIEN ANIMALS / THE STORY OF IMPORTED WILDLIFE. *Nat. Hist. Press*, Garden City, N.Y. 240 p. + 17 pls. 1966. *WR 136: 9*

Few introduced species have become established according to plan. On rare occasions a foreign organism adapts to a new habitat, is beneficial to man, and does not seriously compete with indigenous species. More often, man expends much time, energy, and money in trying to establish a species that is just not adaptable. The case against casual introductions, however, is most strongly supported by the appalling number of ecological backfires man has brought about in his determined efforts to rearrange the fauna. George Laycock recounts some of these magnificent goofs, from the rabbit that overran Australia to the coturnix that refused to cooperate. The book is certainly a warning for those who wish to "add something to the scene" before they consider the possible ecological repercussions.

WILDLIFE--ECONOMIC & OTHER VALUES

Fordham, Alfred J. SEED DISPERSAL BY BIRDS AND ANIMALS IN THE ARNOLD ARBORETUM (HARVARD UNIVERSITY). *Arnoldia* 27(10/11): 73-84, illus. 1967. [From Biol. Abstr. 50(2), 1969.] *WR 136: 9*

Favorites of birds are *Symplocos*, *Sassafras*, *Cornus* sp., *Vaccinium* sp. and Magnolias. There are 36 spp. arranged alphabetically from *Acer* to *Viburnum* listed with notes on the different birds, plus squirrels and chipmunks which have been observed feeding on them.

Syroechkovskii, E. E. BIOECONOMIC REGIONALIZATION OF THE YENISEI NORTH AS A GEOGRAPHIC BASIS FOR LOCATING AND ORGANIZING NORTHERN INDUSTRIES. *Problems of the North* (11): 47-72, 4 figs. June 1968. *WR 136: 9*

[Inst. Geogr., Acad. Sci. USSR.] Transl. of Problemy Severa (11): 38-63. 1967. [See Belkov, *WR 136: 8*, as to availability of this translation from the Russian.]

WILDLIFE--PREDATION, CROP DAMAGE, CONTROL

Lomnicki, Adam, Andrzej Kosior, and Tadeusz Kazmierczak. OCENA SUCHEJ MASY USZKODZEN, DOKONANYCH PRZEZ ROSLINOZERCOW W RUNIE LASU BUKOWEGO (FAGETUM CARPATICUM). [ESTIMATION OF DRY WEIGHT OF INJURIES CAUSED BY HERBIVORES IN GROUND VEGETATION OF BEECH FOREST (FAGETUM CARPATICUM).] *Ekologia Polska* 11(1): 61-67, illus. 1965. [From Biol. Abstr. 50(4), 1969. In Polish with English summ.] *WR 136: 10*

[Zakl. Ochr. Przyr. Pol. Acad. Sci., Cracow, Poland.]

Scarlatescu, G., H. Almăsan, T. Babutia, M. Bodea, and N. Dragomir. RECHERCHES SUR LES PERTES DE GIBIER PENDANT LES TRAVAUX AGRICOLES. [INVESTIGATIONS INTO WILDLIFE DAMAGE DURING AGRICULTURAL OPERATIONS.] *7th Congres Biol. Gibier (Belgrade) Sept. 1965.* p. 321-324. 1967. In French with Russian summ. *WR 136: 10*

[Inst. Forest Res., Bucharest, Romania.]

WETLANDS & WILDLIFE

Anderson, Kenneth H. APPLICATION OF THE WETLANDS INVENTORY IN MAINE. *Trans. NE Sect. Wildl. Soc., 26th NE Fish & Wildl. Conf. 9-12 Feb. 1969.* p. 27-40, 2 figs. 1969. *WR 136: 10*

[Maine Dept. Inland Fisheries & Game, Augusta.] Details of the development and application of an inventory of Maine's existing and potential wetlands. The inventory has been completed for about 20% of the total acreage of the state, and includes all of the state's tidal areas. Total cost of the inventory to date has been approximately $33,000.

Eber, Gisela. ZUM "VORLÄUFIGEN SCHEMA DER TYPOLOGIE UND KLASSIFIKATION VON WASSERVOGELBIOTOPEN." [ON A PRELIMINARY SCHEME FOR THE TYPOLOGY AND CLASSIFICATION OF WATER BIRD HABITATS (WETLANDS).] *Ornithol. Mitteil.* 21(4): 69-78. Apr. 1969. In German. *WR 136: 10*

Includes a 6-page table of wetland habitats classified as follows: 1) ocean, 2) coastal areas, 3) river valleys, and 4) miscellaneous water bird habitats (inland lakes, marshy areas, temporary pools and streams, and man-made impoundments).

Russell, Dan M. STREAMBANK WILDLIFE HABITAT SURVEY. [*Ky.*] *Pittman-Robertson Game Mgmt. Tech. Ser.* no. 16. iv + 51 p., 24 figs. 1967. *WR 136: 10*

Eighteen streams or sections of streams were surveyed, covering a distance of 218.2 miles. Recommendations were made for a long-range stream environment management program.--From abstr.

RANGELAND & WILDLIFE

Remmert, Hermann. ÜBER DIE BEDEUTUNG VOLKREICHER MEERESVOGEL KOLONIEN UND PFLANZENFRESSENDER LANDTIERE FÜR DIE TUNDRA SPITZBERGENS. [THE IMPORTANCE OF SEABIRD COLONIES AND OF PHYTOPHAGOUS TERRESTRIAL ANIMALS FOR THE TUNDRA VEGETATION OF SPITSBERGEN (NORWAY).] *Veröff. Inst. Meeresforsch Bremerhaven* 11(1): 47-59, illus. 1968. [From Biol. Abstr. 50(1), 1969. In German with English summ.] *WR 136: 10*

[Univ. Kiel, Kiel, Germany.]

Shvarts, S. S. ECOLOGICAL BASIS FOR THE PROPER UTILIZATION OF WILDLIFE RESOURCES IN THE FAR NORTH. *Problems of the North* (11): 1-17. June 1968. *WR 136: 10*

[Inst. Plant & Animal Ecol., Urals Div. Acad. Sci., USSR.] Transl. of Problemy Severa (11): 5-19. 1967. [See Belkov, *WR 136: 8*, as to availability of this translation from the Russian.]

FORESTLAND--MANAGEMENT FOR & DAMAGE BY WILDLIFE

Batten, L. A., and D. E. Pomeroy. EFFECTS OF REAFFORESTATION ON THE BIRDS OF RHUM, SCOTLAND. *Bird Study* 16(1): 13-16. Mar. 1969. *WR 136: 11*
[British Trust Ornithol., Beech Grove, Tring, Hertfordshire, England.] Populations doubled during the first year after planting moorland with trees. Density was seven times greater in the eight-year old plantations than in the newly-planted moorland.

Worley, David P., and John D. Gill. STRENGTHENING THE WILDLIFE MANAGER'S HAND IN MULTIPLE-USE CONFLICTS. *Trans. NE Sect. Wildl. Soc., 26th NE Fish & Wildl. Conf. 9-12 Feb. 1969.* p. 11-25, 8 figs. 1969. *WR 136: 11*
[NE Forest Expt. Sta., Columbus, Ohio.] Abstract: Methods used by economists to compare alternative courses of action may sharpen the land manager's judgment in identifying and resolving his multiple-use conflicts. One needs to recognize the critical factors in management for each resource, to predict the effects of manipulating each factor, and to display the interactions among the various management choices. Display of the interactions on relative scales of benefits allows more positive judgment to be directed toward management goals. This approach to resolving conflicts is illustrated with examples based on timber, squirrel, turkey, and deer management.

MAMMALS--GENERAL

Chernov, Yu. I. [GEOGRAPHICAL ZONATION AND THE ANIMAL WORLD OF DRY LAND AREAS (MAMMALS).] *Zool. Zhur.* 47(8): 1125-1141, illus. 1968. [From Biol. Abstr. 50 (13), 1969. In Russian with English summ.] *WR 136: 11*
[N. K. Krupskaya Pedagog. Inst., Moscow, USSR.]

Child, Graham. BEHAVIOUR OF LARGE MAMMALS DURING THE FORMATION OF LAKE KARIBA. *Trustees Natl. Mus. Rhodesia.* vi + 123 p., [26 figs.]. 1968. *WR 136: 11*
The behavior and response towards lake formation of 12 spp. of large mammals, and the conditions to which they were subjected when marooned on small temporary islands, are described. Elephant, waterbuck, and kudu swam to islands to feed. Species with localized territories tended to become marooned on islands, while far-ranging species seldom became trapped except on islands formed from large areas. Rescue operations are described.--From summ.

Dubost, G. LES MAMMIFÈRES SOUTERRAINS. [THE SUBTERRANEAN MAMMALS.] *Rev. Ecol. Biol. Sol* 5(1): 99-133, illus. 1968. [From Biol. Abstr. 50(4), 1969. In French.] *WR 136: 11*
[Lab. Ecol. Gén. Mus., Brunoy, France.] Morphological adaptation to a subterranean life is considered.

Dubost, G. LES MAMMIFÈRES SOUTERRAINS. [THE SUBTERRANEAN MAMMALS.] *Rev. Ecol. Biol. Sol* 5(2): 135-197, illus. 1968. [From Biol. Abstr. 50(9), 1969. In French.] *WR 136: 11*
[Lab. Ecol. Gén. Mus., Brunoy, France.]

Fairall, N. THE REPRODUCTIVE SEASONS OF SOME MAMMALS IN THE KRUGER NATIONAL PARK. *Zool. Africana* 3(2): 189-210, illus. 1968. [From Biol. Abstr. 50(12), 1969.] *WR 136: 11*
[Skukuza, Kruger Natl. Park, South Africa.]

Foster, J. B., and M. J. Coe. THE BIOMASS OF GAME ANIMALS IN NAIROBI NATIONAL PARK, 1960-66. *J. Zool.* 155(4): 413-425, illus. 1968. [From Biol. Abstr. 50 (2), 1969.] *WR 136: 11*
[Univ. Coll., Nairobi, Kenya.]

MAMMALS--GENERAL--Continued

Iljenko, A. I. [MATERIALS ON SPECIES DIFFERENCES IN ACCUMULATION OF SR^{90} AND VARIABILITY OF SMALL MAMMALS CAUGHT ON A PLACE ARTIFICIALLY CONTAMINATED WITH THIS RADIONUCLIDE.] *Zool. Zhur.* 47(11): 1695-1700. Nov. 1968. [From J. Mammal. 50(3), 1969. In Russian with English summ.] *WR 136: 12*

Kerschagl, W. DIE TIERARZTLICHE WISSENSCHAFT UND DIE WILDBESTANDE ÖSTERREICHS. [VETERINARY SCIENCE AND THE STOCK OF GAME IN AUSTRIA.] *Wien. Tierarztl. Monatsschr.* 55(5/6): 325-329. 1968. [From Biol. Abstr. 50(4), 1969. In German with French, Italian, and English summ.] *WR 136: 12*
[Buchfeldgasse 19, Vienna, Austria.]

Nelson, John. COMMUNICATION IN MAMMALIAN POPULATION ECOLOGY. *Proc. Ecol. Soc. Australia* 2: 117-123. 1967. *WR 136: 12*
[Monash Univ., Clayton, Victoria, Australia.]

Pruitt, William O., Jr. SYNCHRONOUS BIOMASS FLUCTUATIONS OF SOME NORTHERN MAMMALS. *Mammalia* 32(2): 172-191, illus. 1968. [From Biol. Abstr. 50(4), 1969. In English with French summ.] *WR 136: 12*
[Memorial Univ. Newfoundland, St. John's, Newfoundland, Canada.]

Svatos, Ivo, and Vaclav Dyk. PRISPEVEK K ZNALOSTI POTRAVY NEKTERYCH SELEM. [CONTRIBUTION TO THE KNOWLEDGE ABOUT THE NOURISHMENT OF SEVERAL CARNIVORA.] *Biologia* (Bratislava) 22(9): 699-703. 1967. [From Biol. Abstr. 50(3), 1969. In Czech.] *WR 136: 12*
[Katedra Parazitol. Invaznich Chorob Vet. Fak., Brno, Czechoslovakia.]

Taylor, R. H. INTRODUCED MAMMALS AND ISLANDS: PRIORITIES FOR CONSERVATION AND RESEARCH (ECOLOGICAL APPROACH). *New Zealand Ecol. Soc.* 15: 61-67, illus. 1968. [From Biol. Abstr. 50(11), 1969.] *WR 136: 12*
[Animal Ecol. Div., DSIR, Lowen Hall, New Zealand.]

MAMMALS--TECHNIQUES

Borodin, L. P. [A COMPARATIVE EVALUATION OF THE EFFECTIVENESS OF DIFFERENT METHODS OF CATCHING SMALL MAMMALS.] *Trudy Mord. Gos. Zapovednika* 3: 186-202. 1966. [From Biol. Abstr. 50(9), 1969, from Referat. Zhur., Biol., 1968, no. 10I469. Transl. of Russian abstr.] *WR 136: 12*

Day, Jerry. CAP-CHUR / PROBLEMS AND REMEDIES. *Wildl. Digest*, Abstr. 2. 4 p., illus. Jan. 1969. *WR 136: 12*
[Ariz. Game & Fish Dept., Phoenix.] Suggestions for use and maintenance of CO_2 rifles in wildlife studies.

Day, Jerry. DRUG USE FOR CAPTURING AND RESTRAINING ANIMALS. *Wildl. Digest*, Abstr. 4. 7 p., 4 figs. June 1969. *WR 136: 12*
[Ariz. Game & Fish Dept., Phoenix.] Includes recommended dosage levels, treatments for overdoses, and reactions of animals to succinylcholine and sernylan.

Dieterlen, F. EINE NEUE METHODE FÜR LEBENDFANG, POPULATIONSSTUDIEN UND DICHTEBESTIMMUNGEN AN KLEINSÄUGERN. [A NEW METHOD FOR LIVE CAPTURE, POPULATION AND DENSITY STUDIES IN SMALL MAMMALS.] *Acta Trop.* 24(3): 244-260, illus. 1967. [From Biol. Abstr. 50(3), 1969. In German with French and English summ.] *WR 136: 12*
[I.R.S.A.C., Lwiro, D. S. Bukavu, Rep. Congo.] A selected area is surrounded by sheets of corrugated iron, then the vegetation completely removed and finally all the animals which live there are captured.

MAMMALS--TECHNIQUES--Continued

Dzieciolowski, Ryszard. METODY BADANA POKARMU DUZYCH SSAKOW ROSLINOZERNYCH. [METHODS OF STUDYING THE FOOD OF LARGE HERBIVOROUS MAMMALS.] *Ekologia Polska--Ser. B* 13(1): 37-46, illus. 1967. [From Biol. Abstr. 50(9), 1969. In Polish with English summ.] *WR 136: 13*
[Inst. Badawczy Lesnictwa, Warsaw, Poland.]

Eriksen, Erik. MEDIKAMENTEL IMMOBILISERING OG FAENGSLING OF DRY: I. TEKNIK OG MEDIKAMENTER. [IMMOBILIZATION AND RESTRAINT OF ANIMALS BY DRUGS: I. TECHNIQUE AND INSTRUMENTS.] *Nordisk Vet. Med.* 20(9): 499-510, illus. 1968. [From Biol. Abstr. 50(15), 1969. In Danish with English summ.] *WR 136: 13*
[Fra Ambulartorisk Klin., Copenhagen, Denmark.]

Gaisler, Jiri, Milan Zapletal, and Vera Holisova. MAMMALS OF RICKS IN CZECHOSLOVAKIA. *Prirodoved. Pr. Ustavu Cesk. Akad. Brne* 1(8): 299-348, illus. 1967. [From Biol. Abstr. 50(11), 1969.] *WR 136: 13*
[Inst. Vertebrate Zool. Czech. Acad. Sci., Brno, Czechoslovakia.] *"Microtus, Apodemus, Mus, Micromys, Sorex,* and *Crocidura."*

Harthoorn, Anthony. LARGE ANIMAL RESTRAINT / A PREREQUISITE FOR CONSERVATION AND RESEARCH. *Africana* 2(7): 19-21, illus. Mar. 1966. *WR 136: 13*
[Univ. Coll., Nairobi, Kenya.] Discussion of the more popular tranquilizers used in immobilizing the larger African animals.

Parr, M. J., T. J. Gaskell, and B. J. George. CAPTURE-RECAPTURE METHODS OF ESTIMATING ANIMAL NUMBERS. *J. Biol. Educ.* 2(2): 95-117, illus. 1968. [From Biol. Abstr. 50(2), 1969.] *WR 136: 13*
[University, Salford, England.]

Pelikan, Jaroslav. [THE EDGE EFFECT OF THE TRAPPING AREA IN ESTIMATES OF NUMBERS OF SMALL MAMMALS.] *Zool. Listy* 17(2): 97-108, illus. 1968. [From Biol. Abstr. 50(4), 1969. In (Czech) with English summ.] *WR 136: 13*
[Czechoslovak Acad. Sci., Brno, Czechoslovakia.]

MAMMALS--FAUNAS & MANUALS

Barriga-Bonilla, Ernesto. ESTUDIOS MASTOZOOLOGICOS COLOMBIANOS: 11. [STUDIES ON COLOMBIAN MAMMALS: 11.] *Caldasia* 9(45): 491-503. 1966. [From Biol. Abstr. 50(1), 1969. In Spanish.] *WR 136: 13*
Abstract: *Sciurus (Guerlinguatus) aestuans georgihernandezi*, from Vaupes, and *Mazama gouazoubira medemi*, from the Macarena Mountains, are described.

Bigalke, R. C. EVOLUTION OF MAMMALS ON SOUTHERN CONTINENTS. III. THE CONTEMPORARY MAMMAL FAUNA OF AFRICA. *Quart. Rev. Biol.* 43(3): 265-300. Sept. 1968. [From J. Mammal. 50(3), 1969.] *WR 136: 13*

Chudoba, Stanislaw, and Stanislaw Humiński. [INSECTIVORES AND RODENTS OF THE BESKID SADECKI MOUNTAINS.] *Acta Zool. Cracovensia* (Cracow) 13(8): 213-230 + 2 pls. 30 May 1968. [From J. Mammal. 50(3), 1969. In Polish with Russian and English summ.] *WR 136: 13*

Conisbee, L. R., editor. NOTES ON THE LOCAL FAUNA AND FLORA FOR 1964: MAMMALS. *Hastings East Sussex Nat.* 10(2): 50-52. 1965. [From J. Mammal. 50(2), 1969.] *WR 136: 13*

Conisbee, L. R. NOTES ON THE LOCAL FAUNA AND FLORA FOR 1965: MAMMALS. *Hastings East Sussex Nat.* 10(3): 78-80. May 1966. [From J. Mammal. 50(2), 1969.] *WR 136: 13*

MAMMALS--FAUNAS & MANUALS--Continued

Conisbee, L. R. NOTES ON THE LOCAL FAUNA AND FLORA FOR 1967: MAMMALS. *Hastings East Sussex Nat.* 10(5): 144-146. May 1968. [From J. Mammal. 50(2), 1969.] *WR 136: 14*

Gaisler, Jiri, Dalibor Povolny, Zdenek Sebek, and Frantisek Tenora. FAUNAL AND ECOLOGICAL REVIEW OF MAMMALS OCCURRING IN THE ENVIRONS OF JALALABAD, WITH NOTES ON FURTHER DISCOVERIES OF MAMMALS IN AFGHANISTAN: II. CHIROPTERA. *Zool. Listy* 17(1): 41-48, illus. 1968. [From Biol. Abstr. 50(3), 1969.] *WR 136: 14*
[Univ. School Agr., Brno, Czechoslovakia.]

Gaisler, Jiri, Dalibor Povolny, Zdenek Sebek, and Frantisek Tenora. FAUNAL AND ECOLOGICAL REVIEW OF MAMMALS OCCURRING IN THE ENVIRONS OF JALALABAD, WITH NOTES ON FURTHER DISCOVERIES OF MAMMALS IN AFGHANISTAN. III. CARNIVORA, LAGOMORPHA. *Zool. Listy* 17(2): 185-189, illus. 1968. [From Biol. Abstr. 50 (2), 1969.] *WR 136: 14*
[Univ. School Agr., Brno, Czechoslovakia.]

Hoffmann, Robert S., Philip L. Wright, and Fletcher E. Newby. THE DISTRIBUTION OF SOME MAMMALS IN MONTANA. I. MAMMALS OTHER THAN BATS. *J. Mammal.* 50 (3): 579-604, 16 figs. Aug. 1969. *WR 136: 14*
[Univ. Kans., Lawrence.] Abstract: Information on current distribution of 40 species of mammals in Montana is given. Four species, *Sorex preblei*, *Sciurus niger*, *Perognathus parvus*, and *Procyon lotor*, are reported for the first time from Montana.

Lavery, H. J., and P. M. Johnson. MAMMALS AND BIRDS OF THE TOWNSVILLE DISTRICT, NORTH QUEENSLAND: 1. INTRODUCTION AND MAMMALS. *Queensland J. Agr. Animal Sci.* 25(1/2): 29-37, illus. 1968. [From Biol. Abstr. 50(11), 1969.] *WR 136: 14*
[Dept. Primary Ind., Conooba, Queensland, Australia.]

Paradiso, John L. MAMMALS OF MARYLAND. *N. Am. Fauna* no. 66. iv + 193 p., 54 figs. Apr. 1969. Available from Supt. Documents at $1.00. *WR 136: 14*
[Smithsonian Inst., Washington, D.C.] Includes keys and species accounts of Maryland mammals.

Wolfe, James L., and David T. Rogers. OLD FIELD MAMMALS IN WESTERN ALABAMA. *J. Mammal.* 50(3): 609-612, 1 fig. Aug. 1969. *WR 136: 14*
[Miss. State Univ., State College.]

Ziegler, Alan C., and William Z. Lidicker, Jr. KEYS TO THE GENERA OF NEW GUINEA RECENT LAND MAMMALS. *Proc. Calif. Acad. Sci.* 36(2): 33-71, illus. 1968. [From Biol. Abstr. 50(5), 1969.] *WR 136: 14*
[Bishop Mus., Honolulu, Hawaii.] Ninety-four genera are treated.

MAMMALS--POPULATIONS, HOME RANGES, COMMUNITIES

Batcheler, C. L. COMPENSATORY RESPONSE OF ARTIFICIALLY CONTROLLED MAMMAL POPULATIONS. *New Zealand Ecol. Soc.* 15: 25-30, illus. 1968. [From Biol. Abstr. 50(13), 1969.] *WR 136: 14*

Boshell, M. J., and P. K. Rajagopalan. SMALL RODENTS AND SHREWS IN THE SAGAR-SORAB AREA, MYSORE STATE INDIA: POPULATION STUDIES (1961-1964). *Indian J. Med. Res.* 56(suppl. 4): 527-540. 1968. [From Biol. Abstr. 50(11), 1969.] *WR 136: 14*
[Virus Res. Center, Poona, Maharashtra, India.]

Kratochvil, Josef, and Jiri Gaisler. DIE SUKZESSION DER KLEINEN ERDSÄUGETIERE IN EINEM BERGWALD SORBETO-PICETUM. [SYNUSIA OF SMALL TERRESTRIAL MAMMALS IN A MOUNTAIN FOREST OF THE TYPE OF SORBETO-PICETUM.] *Zool. Listy* 16(4): 301-324. 1967. [From Biol. Abstr. 50(5), 1969. In German with English summ.] *WR 136: 15*
[Czechoslovak Acad. Sci., Brno, Czechoslovakia.]

Murray, Keith F. DISTRIBUTION OF NORTH AMERICAN MAMMALS (TERRESTRIAL SPECIES). *Syst. Zool.* 17(1): 99-102. 1968. [From Biol. Abstr. 50(6), 1969.] *WR 136: 15*
[State Dept. Public Health, Berkeley, Calif.]

Petersen, Erich. OEKOLOGISCHE UND POPULATIONSDYNAMISCHE UNTERSUCHUNGEN AN SCHLESWIG-HOLSTEINISCHE KLEINSAEUGERN. [ECOLOGICAL AND POPULATION DYNAMIC INVESTIGATIONS ON SMALL MAMMALS IN SCHLESWIG-HOLSTEIN.] *Schr. Naturwiss. Ver Schleswig-Holstein* 36: 78-83, illus. 1965. [From Biol. Abstr. 50(9), 1969. In German.] *WR 136: 15*
[Kolsterhof 23, Preetz, Holstein, Germany.] *"Apodemus sylvaticus, A. flavicollis, Clethrionomys glareolus, Sorex araneus,* and *S. minutus."*

MAMMALS--PARASITES & DISEASES

Bassini, Ettore. CONSIDERAZIONI SULL'ESITO DEGLI ESAMI EFFETTUATI SU ANIMALI SELVATICI VIVENTI IN LIBERTÀ ED IN CATTIVITÀ. [CONSIDERATIONS UPON THE RESULTS OF EXAMINATIONS PERFORMED UPON WILD ANIMALS LIVING IN CAPTIVITY OR FREE.] *Lab. Zool. Appl. Caccia* (Univ. Bologna) 46: 1-28. 1969. In Italian with French, German and English summ. *WR 136: 15*
Analysis of wildlife disease data for the period 1966-1968.

Bijlenga, G. THE RELATIONSHIP OF WILD ANIMALS AND RABIES: SOME ECOLOGICAL KNOWLEDGE OF RESERVOIR SPECIES, AS A BASIS FOR THE EPIZOOTIOLOGY AND CONTROL OF THE DISEASE. *IUCN Publ. New Ser.* (Morges) 13: 111-118. 1968. [From J. Mammal. 50(3), 1969.] *WR 136: 15*

Corbet, G. B., R. A. D. Cameron, and J. J. D. Greenwood. SMALL MAMMALS AND THEIR ECTOPARASITES FROM THE SCOTTISH ISLANDS OF HANDA (SUTHERLAND), MUCK, PABAY, SCALPAY, AND SOAY (INNER HEBRIDES). *J. Linnean Soc. London* 47(312): 301-307. Apr. 1968. [From J. Mammal. 50(3), 1969.] *WR 136: 15*

Whitaker, John O., Jr., and Nixon Wilson. MITES OF SMALL MAMMALS OF VIGO COUNTY, INDIANA. *Am. Midland Nat.* 80(2): 537-542. Oct. 1968. *WR 136: 15*
[Ind. State Univ., Terre Haute.] Twenty-six species of six families were collected from 1469 small mammals. Mites and their hosts are listed.

SHREWS, MOLES, BATS

Barrett, Gary W. BIOENERGETICS OF A CAPTIVE LEAST SHREW, *CRYPTOTIS PARVA*. *J. Mammal.* 50(3): 629-630. Aug. 1969. *WR 136: 15*
[Miami Univ., Oxford, Ohio.]

Dinale, G., and G. M. Ghidini. CENTRO INANELLAMENTO PIPISTRELLI: OTTO ANNI DI ATTIVITA (1957-1964). [BAT BANDING CENTER: 8 YEARS OF ACTIVITY (1957-1964).] *Atti Soc. Ital. Sci. Nat. Mus. Civico Storia Nat. Milano* 105(1): 91-101. 1966. [From Biol. Abstr. 50(13), 1969. In Italian with English summ.] *WR 136: 15*

Dinale, Giovanni. STUDI SUI CHIROTTERI ITALIANI: VIII. SPOSTAMENTI DI *RHINOLOPHUS EURYALE* BLASIUS INANELLATI IN LIGURIA. [STUDIES OF ITALIAN CHIROPTERANS: VIII. MIGRATION OF BANDED *RHINOLOPHUS EURYALE* BLASIUS IN LIGURIA.] *Atti Soc. Ital. Sci. Nat. Mus. Civico Storia Nat. Milano* 106(4): 275-282, illus. 1968. [From Biol. Abstr. 50(6), 1969. In Italian with English summ.] *WR 136: 15*
[Inst. Zool., Univ., Rome, Italy.]

Dolgov, V. A., V. I. Chavobsky, S. A. Shilova, and K. M. Efron. [SOME FEATURES IN THE ECOLOGY OF THE COMMON SHREW (MAMMALIA, *SOREX*) AND THEIR IMPORTANCE IN FOCI OF TICK ENCEPHALITIS.] *Bull. Moscow Soc. Nat., Biol. Ser.* 73(6): 17-28. 1968. [From J. Mammal. 50(3), 1969. In Russian with English summ.] *WR 136: 16*

Feliksiak, Stanislaw. NIETOPERZE, *PLECOTUS AURITUS* (L.) W SIECIACH LOWNYCH. OBSERWACJE BIOLOGICZNO-MORFOLOGICZNE. [BATS, *PLECOTUS AURITUS* (L.) IN BIRD NETTINGS. BIOLOGICAL AND MORPHOLOGICAL OBSERVATIONS.] *Przegl. Zool.* 12(1): 88-93, illus. 1968. [From Biol. Abstr. 50(16), 1969. In Polish with English summ.] *WR 136: 16*
[Inst. Zool., Polish Acad. Sci., Warsaw, Poland.]

Gaisler, Jiri, and Milan Klima. DAS GESCHLECHTVERHÄLTNIS BEI FETEN UND JUNGEN EINIGER FLEDERMAUSARTEN. [THE SEX RATIO OF FETUSES AND YOUNG BATS OF SOME BAT SPECIES.] *Z. Säugetierk.* 33(6): 352-357, illus. 1968. [From Biol. Abstr. 50 (14), 1969. In German with English summ.] *WR 136: 16*
[Inst. Wirbeltierforsch., Czechoslovak Acad. Sci., Brno, Czechoslovakia.]

Greenhall, Arthur M. PROBLEMS AND ECOLOGICAL IMPLICATIONS IN THE CONTROL OF VAMPIRE BATS. *IUCN Publ. New Ser.* (Morges) 13: 94-102. 1968. [From J. Mammal. 50(3), 1969.] *WR 136: 16*

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[Arizona-Sonora Desert Mus., Tucson, Ariz.]

Lammler, G., and E. Saupe. INFEKTIONSVERSUCHE MIT DEM LUNGENWURM DES IGELS, *CRENOSOMA STRIATUM* (ZEDER, 1800). [INFECTION EXPERIMENTS WITH THE LUNGWORM OF THE HEDGEHOG, *CRENOSOMA STRIATUM* (ZEDER, 1800).] *A. Parasitenk.* 31(2): 87-100. 1968. [From Biol. Abstr. 50(14), 1969. In German with English summ.] *WR 136: 16*
[Inst. Parasitol. & Parasitare Krankheiten Tiere, Giessen, Germany.]

Lankin, P. M. [DISTRIBUTION AND BIOLOGY OF BRANDT'S HEDGEHOG *(PARAECHINUS HYPOMELAS* BRANDT).] *Zool. Zhur.* 46(9): 1414-1417. 1967. [From Biol. Abstr. 50 (2), 1969. In Russian with English summ.] *WR 136: 16*

Menaker, Michael. HEAT ACCLIMATION OF SUMMER BATS. *Am. Midland Nat.* 82(1): 289-290. July 1969. *WR 136: 16*
[Univ. Texas, Austin.] Abstract: Preliminary experiments designed to study possible environmental control of changes from summer to winter physiology in *M. lucifugus* indicate increased arousability of summer females at several different photoperiods and ambient temperatures within two to three weeks after being brought into the laboratory.

Olsen, Ronald W. AGONISTIC BEHAVIOR OF THE SHORT-TAILED SHREW *(BLARINA BREVICAUDA). J. Mammal.* 50(3): 494-500, 2 figs. Aug. 1969. *WR 136: 16*
[Univ. Wis., Madison.] Abstract: Observations were made on the agonistic behavior of 39 *Blarina brevicauda* matched in pairs in a test cage. Nine agonistic behavior patterns, including four action patterns and five postures, are described. Analyses were made to determine the function of each posture in terms of an opponent's reaction to it. Each of the five agonistic postures serves to intimidate the opponent in varying degrees. These postures are termed threat postures and their possible functions are discussed in terms of territoriality and species recognition.

Phillips, Carleton J., J. Knox Jones, Jr., and Frank J. Radovsky. MACRONYSSID MITES IN ORAL MUCOSA OF LONG-NOSED BATS: OCCURRENCE AND ASSOCIATED PATHOLOGY. *Science* 165(3900): 1368-1369, 3 figs. 26 Sept. 1969. *WR 136: 16*
[Univ. Kans., Lawrence.]

SHREWS, MOLES, BATS--Continued

Starrett, Andrew, and Richard S. Casebeer. RECORDS OF BATS FROM COSTA RICA. *Los Angeles County Mus. Contrib. Sci.* 148: 1-21. 1968. [From Biol. Abstr. 50 (5), 1969.] *WR 136: 17*
[Fernando Valley State Coll., Northridge, Calif.] Twenty-five species.

Webster, Frederic A., and Oliver G. Brazier. EXPERIMENTAL STUDIES ON ECHO-LOCATION MECHANISMS IN BATS. *Aerospace Med. Res. Lab.* 158 p. May 1968. [From J. Mammal. 50(3), 1969. Obtainable from Clearinghouse for Federal Sci. & Tech. Information, Springfield, Va.] *WR 136: 17*

RABBITS & PIKAS

Andrzejewski, Roman, and Wlodzimerz Jezierski. EKOLOGICZNE PROBLEMY UZYTKOWANIA I KIEROWANIA LICZEBNOSCIQ POPULACJI ZAJACA NA TLE NAJNOWSZYCH POLSKICH BADA. [ECOLOGICAL PROBLEMS OF THE UTILIZATION AND CONTROL OF THE HARE POPULATION IN THE LIGHT OF RECENT POLISH RESEARCH.] *Ekologia Polska--Ser. B* 13(1): 17-36, illus. 1967. [From Biol. Abstr. 50(9), 1969. In Polish with English summ.] *WR 136: 17*
[Inst. Ekol. Pan, Warsaw, Poland.]

Eabry, Steve. A BIBLIOGRAPHY OF EUROPEAN HARE, *LEPUS EUROPAEUS*. *N.Y. State Conserv. Dept.* (Delmar). 32 p., multilith. June 1969. *WR 136: 17*
A list of 280 references arranged in alphabetical order by author. With a subject index.

Haug, Joseph Carroll. ACTIVITY AND REPRODUCTION OF THE BLACK-TAILED JACKRABBIT IN THE COASTAL CORDGRASS PRAIRIE OF TEXAS. *M.S. thesis, Texas A&M Univ.* 1969. *WR 136: 17*
Courtesy/ Julie L. Moore.

Hromas, Josef, and Midan Spratek. PRESETRENI NEKTERYCH BIONOMICKYCH UDAJU O ZAJICICH A JEJICH VYZNAM PRO MYSLIVECKOU PRAXI. [RE-EXAMINATION OF SOME BIONOMIC DATA CONCERNING HARES AND THEIR IMPORTANCE IN HUNTING.] *Acta Univ. Agr. Fac. Silvicult.* 36(4): 385-397, illus. 1967. [From Biol. Abstr. 50(12), 1969. In Czech with German summ.] *WR 136: 17*
[Lesnicke Fak. Vysoke Sk. Zemedelske, Brno, Czechoslovakia.]

James, Ted R., and Robert W. Seabloom. REPRODUCTIVE BIOLOGY OF THE WHITE-TAILED JACK RABBIT IN NORTH DAKOTA. *J. Wildl. Mgmt.* 33(3): 558-568, 4 figs. July 1969. *WR 136: 17*
[Univ. Tenn., Martin.] Abstract: Reproductive characteristics of the white-tailed jackrabbit *(Lepus townsendii campanius)* were determined from 836 animals collected between April, 1964, and December, 1965. A synchronous breeding pattern, with four well-defined peaks of annual activity, was apparent. The breeding season was 148 days in length, and extended from late February through mid-July. A definite annual cycle of sperm production was found. Weights of the testes and the epididymides varied directly with this cycle. The number of ova shed decreased steadily as the breeding season progressed. Females produced an average of 3.29 litters annually. Litter size ranged from one to nine, with an average of 4.6. Combined pre-implantation and intra-uterine losses were 21%, and appeared to be more prevalent in older females.

McDonough, James J. THE SNOWSHOE HARE STOCKING PROGRAM IN MASSACHUSETTS. *Trans. NE Sect. Wildl. Soc., 26th NE Fish & Wildl. Conf. 9-12 Feb. 1969.* p. 57-68. 1969. *WR 136: 17*
[Mass. Div. Fisheries & Game, Westboro.] Abstract: The physical condition of snowshoe hare *(Lepus americanus)* imported into Massachusetts from New Brunswick is discussed. Results of conditioning methods employed in holding pens are analyzed. Following release, distances travelled, survival rates and hunter kills are presented. Recommendations follow.

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Mykytowycz, R. COMMUNICATION BY SMELL IN THE WILD RABBIT. *Proc. Ecol. Soc. Australia* 2: 125-131, 4 figs. 1967. *WR 136: 18*
[CSIRO, Div. Wildl. Res., Canberra, Australia.] Summary: Investigations into the role of the secretion of the anal gland and dung-hills in the territorial behaviour of the wild rabbit, *Oryctolagus cuniculus* (L.), are outlined. Reference is made to some methods used: direct observations of the behaviour of rabbits; comparisons with other closely related species; subjective measurements of odour intensities; study of the distribution of dung-hills in natural rabbit populations; and the effect of castration on the development of the gland. The importance of olfaction in the intra-specific communication of wild rabbits is suggested.

Pelton, Michael R. THE RELATIONSHIP BETWEEN EPIPHYSEAL GROOVE CLOSURE AND AGE OF THE COTTONTAIL RABBIT *(SYLVILAGUS FLORIDANUS)*. *J. Mammal.* 50(3): 624-625, 1 fig. Aug. 1969. *WR 136: 18*
[Univ. Tenn., Knoxville.]

Samuel, David E. POSSIBLE CAUSE OF MORTALITY IN PENNED FEMALE COTTONTAILS. *Proc. W. Va. Acad. Sci.* 40: 138-139. Jan. 1969. [From J. Mammal. 50(3), 1969.] *WR 136: 18*

Zoloth, Stephen R. OBSERVATIONS OF THE POPULATION OF BRUSH RABBITS ON AÑO NUEVO ISLAND, CALIFORNIA. *Wasmann J. Biol.* 27(1): 149-161, 5 figs. Spring 1969. *WR 136: 18*
[Univ. Pa., Philadelphia.] Conclusions: Population size on Año Nuevo Island may be directly related to food supply and available shelter. Population size and density are greater in areas that fulfill those requirements. Other workers have suggested that the diurnal sequences of activity of *Sylvilagus bachmani* are controlled by several environmental factors, specifically light intensity, weather, and predation, or endogenous factors such as food assimilation. I believe that the environment of each particular population of *S. bachmani* will determine the relative influence of each of these factors. On Año Nuevo Island activity is probably regulated by weather and possibly also by an endogenous rhythm stemming from food assimilation.

RODENTS--MISCELLANEOUS

Abe, Hisashi. [GROWTH AND DEVELOPMENT IN TWO FORMS OF *CLETHRIONOMYS*: I. EXTERNAL CHARACTERS, BODY WEIGHT, SEXUAL MATURITY AND BEHAVIOR *(CLETHRIONOMYS RUFOCANUS BEDFORDIAE, CLETHRIONOMYS SIKOTANENSIS)*.] *Bull. Hokkaido Forest Expt. Sta.* 6. p. 69-89, illus. 1968. [From Biol. Abstr. 50(13), 1969. In Japanese with English summ.] *WR 136: 18*
[Hokkaido Univ., Sapporo, Japan.]

Adesuyi, S. A. CONTROL OF RODENTS IN THE GROUNDNUT STORAGE SITE IN KANO. *Nigerian Stored Prod. Res. Inst. Ann. Rept.* p. 25-31. 1966. [From Biol. Abstr. 50(2), 1969.] *WR 136: 18*
The species of rat found at the groundnut stacking area in Kano, *Arvicanthis niloticus rufinus*, is not resistant to warfarin. Soreza (0.5% warfarin) is the most effective of the 3 warfarin products tried on *A. niloticus rufinus*. The rats were killed after 6 days of continuous feeding.

Anderson, Arthur O., and Dorald M. Allred. KANGAROO RAT BURROWS AT THE NEVADA TEST SITE. *Great Basin Nat.* 24(3/4): 93-101, illus. 1964. [From Biol. Abstr. 50(13), 1969.] *WR 136: 18*
[Mapusaga High School, Samoa.]

Bol'shakov, V. N. THE BIOLOGY OF MULTIPLICATION, THE AGE STRUCTURE AND THE POPULATION DYNAMICS OF LEMMING VOLES. *Problems of the North* (11): 133-137. June 1968. *WR 136: 19*
[Inst. Plant & Animal Ecol., Urals Branch Acad. Sci., USSR.] Transl. of Problemy Severa (11): 114-117. 1967. [See Belkov, *WR 136: 8*, as to availability of this translation from the Russian.]

Brand, Leonard R., and Raymond E. Ryckman. BIOSYSTEMATICS OF *PEROMYSCUS EREMICUS, P. GUARDIA,* AND *P. INTERPARIETALIS. J. Mammal.* 50(3): 501-513, 5 figs. Aug. 1969. *WR 136: 19*
[Loma Linda Univ., Loma Linda, Calif.]

Brown, Larry N. REPRODUCTIVE CHARACTERISTICS OF THE MEXICAN WOODRAT AT THE NORTHERN LIMIT OF ITS RANGE IN COLORADO. *J. Mammal.* 50(3): 536-541, 1 fig. Aug. 1969. *WR 136: 19*
[Univ. South Fla., Tampa.] Abstract: The reproductive biology of the Mexican woodrat *(Neotoma mexicana)* was studied for 16 months along the Front Range of northern Colorado from February 1966 through May 1967. Adult females bred from March through May and produced two litters annually. The mean litter size for adult females was 3.43 ± 0.35 based on embryo counts, 3.66 ± 0.31 based on corpora lutea, and 3.47 ± 0.39 based on placental scars. Juvenile females born in April and May developed rapidly and produced litters in June or July while still partially or wholly in the gray, juvenile pelage. Young females had an average of 2.44 ± 0.27 embryos and 2.52 ± 0.31 corpora lutea. Some young females born late in the reproductive season, ovulated in September and October, but failed to produce litters. Reproductive failure was apparently due to an absence of fertile males in the population at that time. Peak testicular development occurred in April, 1966 and 1967 (mean weight, 1470.6 ± 257.2 and 1540.2 ± 288.4 milligrams, respectively), and minimal testicular size and activity occurred in November, 1966 (mean weight, 119.6 ± 21.7 milligrams). The gonadal development of juvenile males progressed slowly in 1966 compared to juvenile females. Mean testicular weight and activity remained low through November (mean weight, 61.9 ± 12.5 milligrams), then accelerated rapidly in December (mean weight, 476.8 ± 81.3 milligrams), and finally reached full reproductive development during the 1967 breeding season.

Cheng, Pao-Lai, K. C. Tsai, N. W. Chou, and K. N. Fung. [ON THE POPULATION DENSITY OF MOLE-RATS IN THE UPPER WHO-TUO VALLEY.] *Acta Zool. Sinica* 18(1): 21-27, illus. 1966. [From Biol. Abstr. 50(3), 1969. In Chinese with English summ.] *WR 136: 19*

Church, Ronald L. EVAPORATIVE WATER LOSS AND GROSS EFFECTS OF WATER PRIVATION IN THE KANGAROO RAT, *DIPODOMYS VENUSTUS. J. Mammal.* 50(3): 514-523, 1 fig. Aug. 1969. *WR 136: 19*
[Univ. Nev., Reno.]

Clemens, Lynwood G. EXPERIMENTAL ANALYSIS OF SEXUAL BEHAVIOR OF THE DEERMOUSE *PEROMYSCUS MANICULATUS GAMBELI. Behaviour* 34(4): 267-285, 4 figs. 1969. *WR 136: 19*
[Mich. State Univ., East Lansing.]

de Rouffignac, Christian, and Francois Morel. ÉTUDE COMPARÉE DU RENOUVELLEMENT DE L'EAU CHEZ QUATRE ESPÈCES DE RONGEURS, DONT DEUX ESPÈCES D'HABITAT DÉSERTIQUE. [A COMPARATIVE STUDY OF WATER TURNOVER IN FOUR RODENT SPECIES, OF WHICH TWO ARE FROM THE DESERT.] *J. Physiol.* (Paris) 58(3): 309-322, illus. 1966. [From Biol. Abstr. 50(3), 1969. In French with English summ.] *WR 136: 19*
[Comm. Energ. At., Saclay, France.]

Diehl, Frederick P. SOUND AS A RODENT DETERRENT. *Pest Control* 37(8): 36, 38, 40-42, 44. Aug. 1969. *WR 136: 20*

[Bio-Sonic, Inc., Fort Lauderdale, Fla.] The ultrasonic device (22,000 cycles per second) prevents strange populations from entering the protected area after local populations have been removed.

Douglas, Charles L. COMPARATIVE ECOLOGY OF PINYON MICE AND DEER MICE IN MESA VERDE NATIONAL PARK, COLORADO. *Univ. Kans. Publ., Mus. Nat. Hist.* 18(5): 421-504, 20 figs. 20 Aug. 1969. *WR 136: 20*

Home ranges, vegetational analysis of habitats, microclimates of different habitats, habitat preference, nesting and nest construction, reproduction, growth, parental behavior, food habits, water consumption, parasitism, and predation of *Peromyscus maniculatus* and *P. truei* are discussed.

Dubrovskii, Yu. A., V. I. Zhukov, and Yu. V. Kovalevskii. [TECHNIQUES FOR STUDYING THE INTERNAL STRUCTURES OF THE BURROWS OF GREAT GERBILS.] *Zool. Zhur.* 47(10): 1549-1553, illus. 1968. [From Biol. Abstr. 50(11), 1969. In Russian with English summ.] *WR 136: 20*

[Inst. Epidemiol. Microbiol., Acad. Med. Sci. USSR, Moscow, USSR.]

Fernandes, Ruy G. TUCO-TUCO: UM ROEDOR NOCIVO. [THE "TUCO-TUCO," A RODENT PEST.] *Rev. Fac. Agron. Vet. Univ. Fed. Rio Grande Do Sul* 7(3/4): 253-257. 1965. [From Biol. Abstr. 50(2), 1969. In Portuguese.] *WR 136: 20*

"Ctenomys torquatus and *C. minutus."*

Fisler, George F. ADAPTATIONS IN MOVEMENT PATTERNS OF TWO SPECIES OF SALT-MARSH RODENTS. *Bull. Southern Calif. Acad. Sci.* 67(2): 96-103. 1968. [From Biol. Abstr. 50(6), 1969.] *WR 136: 20*

[San Fernando Valley State Coll., Northridge, Calif.] *"Microtus californicus* and *Reithrodontomys raviventris."*

Fleharty, Eugene D., and Lawrence E. Olson. SUMMER FOOD HABITS OF *MICROTUS OCHROGASTER* AND *SIGMODON HISPIDUS*. *J. Mammal.* 50(3): 475-486. Aug. 1969. *WR 136: 20*

[Fort Hays Kans. State Coll., Hays.] Abstract: Stomach contents were analyzed for 97 *Microtus ochrogaster haydenii* and 86 *Sigmodon hispidus texianus* to determine what plant species were utilized, the effect of plant availability on diet, and the degree to which both species utilized identical foods. Based on per cent volume consumed, *Sigmodon* utilized *Triticum aestivum, Kochia scoparia, Sporobolus asper, Bromus japonicus, Rumex crispus,* and *Xanthium* commune the most during June and July from two areas. In the same areas, *Microtus* concurrently found *S. asper, K. scoparia, Bouteloua gracilis, B. japonicus, R. crispus,* and *Digitaria sanguinalis* the most palatable. Availability of plants was found to be an influencing factor on what was eaten, but certainly was not the only factor, because many plant species that were not dominant were seemingly selected on the basis of their growth stage and palatability. Although the same species of plants comprised most of the food eaten by the two rodents, it is likely that competition existed for space rather than food, as ample food was available throughout the study.

Gashwiler, Jay S. DEER MOUSE REPOPULATION OF A POISONED DOUGLAS-FIR CLEARCUT. *J. Forestry* 67(7): 494-497, 2 figs. July 1969. *WR 136: 20*

[Denver Wildl. Res. Center, Bend, Oreg.] Although poisoned bait was effective at least 38 days, animals were infiltrating the area 15 to 19 days after baiting. Within 5-7 months the population had reached the same relative levels.--From abstr.

Ghizelea, Gabriela, and Vasile Andreescu. CONTRIBUTIONS TO THE STUDY OF RODENTS FROM THE AGRICULTURAL AREAS OF THE BUCHAREST REGION. *Trav. Mus. Hist. Nat. Grigore Antipa* 7: 437-448, illus. 1967. [From Biol. Abstr. 50(11), 1969. In English with Romanian and Russian summ.] *WR 136: 20*

Ghosh, P. K., A. P. Jain, and G. C. Taneja. ADRENAL RESPONSES TO CROWDING IN THE INDIAN DESERT GERBIL, *MERIONES HURRIANAE* JERDON. *Indian J. Exptl. Biol.* 6(3): 162-163. July 1968. [From J. Mammal. 50(3), 1969.] *WR 136: 21*

Gruber, Ulrich, and Herman Kahmann. EINE BIOMETRISCHE UNTERSUCHUNG AN ALPINEN ROTELMAUSEN *(CLETHRIONOMYS GLAREOLUS* SCHREBER, 1780*)*. [A BIOMETRIC STUDY ON ALPINE *CLETHRIONOMYS GLAREOLUS* SCHREBER 1780.] *Säugetierk. Mitt.* 16(4): 310-338, illus. 1968. [From Biol. Abstr. 50(16), 1969. In German with English summ.] *WR 136: 21*
[Mus. Alexander Koenig, Bonn, Germany.]

Haas, Glenn E. QUANTITATIVE RELATIONSHIPS BETWEEN FLEAS AND RODENTS IN A HAWAIIAN CANE FIELD. *Pacific Sci.* 23(1): 70-82. Jan. 1969. [From J. Mammal. 50(3), 1969.] *WR 136: 21*

Harriman, Arthur E. A COMPARATIVE STUDY OF FOOD AND WATER REGULATION BY LABORATORY RATS AND MONGOLIAN GERBILS MAINTAINED ON IDENTICAL SELF-SELECTION OF DIET SCHEDULES. *Am. Midland Nat.* 82(1): 157-172. July 1969. *WR 136: 21*
[Okla. State Univ., Stillwater.]

Harriman, Arthur E. FOOD AND WATER REQUIREMENTS OF MONGOLIAN GERBILS AS DETERMINED THROUGH SELF-SELECTION OF DIET. *Am. Midland Nat.* 82(1): 149-156. July 1969. *WR 136: 21*
[Okla. State Univ., Stillwater.] *"Meriones unguiculatus."*

Henschel, H. J., D. Niederstadt, and F. Sobeck. VERSUCHE ZU EINEM BIOCHEMISCHEN ARTNACHWEIS AN NAGERFAECES. [EXPERIMENTS ON BIOCHEMICAL SPECIES--IDENTIFICATION IN RODENT FECES.] *Arch. Hyg. Bakteriol.* 152(1): 82-85, illus. 1968. [From Biol. Abstr. 50(12), 1969. In German with Spanish, French, and English summ.] *WR 136: 21*
[Untersuchungsanst. Stadtehyg., Hamburg, Germany.]

Hsia, Wu-Ping. [POPULATION DYNAMICS OF FOREST REGION SMALL RODENTS, LESSER KHING-AN MOUNTAINS. II. THE INFLUENCES OF THE CLIMATOLOGICAL FACTORS ON THE NUMBERS OF RODENTS.] *Acta Zool. Sinica* 18(1): 8-19. 1966. [From Biol. Abstr. 50(3), 1969. In Chinese with English summ.] *WR 136: 21*

Ilmen, Matti, and Seppo Lahti. REPRODUCTION, GROWTH AND BEHAVIOUR IN THE CAPTIVE WOOD LEMMING, *MYOPUS SCHISTICOLOR* (LILLJEB.). *Ann. Zool. Fenn.* 5(2): 207-219, illus. 1968. [From Biol. Abstr. 50(3), 1969.] *WR 136: 21*
[Kilpisjarvi Biol. Sta., Univ., Helsinki, Finland.]

Ivanova, T. M. [TECHNIQUE OF COUNTING THE FOREST DORMOUSE *(DYROMYS NITEDULA* PALL.*)*.] *Zool. Zhur.* 47(3): 455-456. 1968. [From Biol. Abstr. 50(7), 1969. In Russian with English summ.] *WR 136: 21*
[Kazakh Res. Inst. Plant Protection, Alma Ata, USSR.]

Iverson, Stuart L., and Brian N. Turner. UNDER-SNOW SHELTER FOR SMALL MAMMAL TRAPPING. *J. Wildl. Mgmt.* 33(3): 722-723, 1 fig. July 1969. *WR 136: 21*
[Whiteshell Nuclear Res. Establishment, Atomic Energy of Canada Ltd., Pinawa, Manitoba.] Abstract: The inexpensive, easily constructed shelter described allowed routine livetrapping of *Microtus pennsylvanicus* to continue successfully when temperatures fell as low as -35 C. It also provided summer shade so that traps needed checking only once a day to maintain low trap mortality. Trap mortality rates are given.

Kminiak, M. [SOME NOTES ON POPULATION DYNAMICS OF *ARVICOLA TERRESTRIS* L. 1758 IN THE YEARS 1965 AND 1966 IN SOUTH-WEST SLOVAKIA.] *Biológia* (Bratislava) 21(4): 894-900. 1968. [From J. Mammal. 50(3), 1969. In German with Czech and Russian summ.] *WR 136: 21*

Kminiak, Milan. BEITRAG ZUR ERKENNTNIS DER ÖKOLOGIE DER ART *MICROMYS MINUTUS* PALLAS 1771 IM WESTLICHEN TEIL DER RESERVATION JURSKY SUR BEI BRATISLAVA. [CONTRIBUTION TO THE KNOWLEDGE OF THE BIOLOGY OF *MICROMYS MINUTUS* PALLAS 1771 IN THE WESTERN PART OF THE JURSKY SUR RESERVE NEAR BRATISLAVA.] *Zool. Listy* 17 (2): 127-139, illus. 1968. [From Biol. Abstr. 50(2), 1969. In German with English summ.] *WR 136: 22*
[Komesky Univ., Bratislava, Czechoslovakia.]

Koshkina, T. V. [POPULATION REGULATION OF THE NUMBER OF RODENTS (EXAMPLE: THE NORTHERN REDBACKED VOLE AND THE NORWEGIAN LEMMING).] *Bull. Moscow Obshch. Ispit. Prirody (Biol.)* 72(6): 5-20, illus. 1967. [From Biol. Abstr. 50(2), 1969. In Russian with English summ.] *WR 136: 22*

Lindsey, Gerald D. CHARACTERISTICS OF SUGARCANE DAMAGE CAUSED BY RODENTS, IN HAWAII. *Sugar J.* [1969]: 22-24, 4 figs. Feb. 1969. *WR 136: 22*
[Bur. Sport Fisheries & Wildl., Hilo, Hawaii.] Characteristics of sugarcane stalk damage inflicted by *Rattus exulans, R. rattus,* and *R. norvegicus.* Rind chips discarded by feeding rats provided the best clues for identifying the species causing the damage.--From abstr.

Linkola, Pentti, and Arvo Myllymäki. DER EINFLUSS DER KLEINSÄUGERFLUKTUATIONEN AUF DAS BRÜTEN EINIGER KLEINSÄUGERFRESSENDER VÖGEL IM SÜDLICHEN HÄME, MITTEL-FINNLAND 1952-1966. [THE INFLUENCE OF THE FLUCTUATION IN NUMBERS OF SMALL RODENTS ON THE BREEDING SUCCESS OF SIX PREDATORY BIRDS IN HÄME, SOUTH FINLAND.] *Ornis Fenn.* 46(2): 45-78, 7 figs. 1969. In German with Finnish and English summ. *WR 136: 22*
The dependence of the breeding success of 6 spp. of predatory birds, *Aegolius funereus, Asio otus, Strix aluco, S. uralensis, Falco tinnunculus,* and *Buteo b. vulpinus,* on the fluctuation in numbers of small rodents was studied from 1952 to 1966 in Häme, South Finland. The numbers of certain species of small rodents (e.g., *Clethrionomys glareolus*) evidently fluctuate simultaneously with the field vole *(Microtus agrestis),* while fluctuations in other species are apparently quite independent *(M. arvalis* and *Arvicola terrestris).* In general, there is a good correlation between clutch size and the fluctuation of vole numbers. Peak years stand out quite distinctly with only a few exceptions: the Ural owl and the kestrel (the latter species has probably at least as close a connection with the fluctuation in numbers of *M. arvalis*).--From summ.

Litvin, V. Yu., and E. V. Karaseva. [A STUDY OF THE DAILY MIGRATIONS OF *MICROTUS OECONOMUS* PALL. VOLES BY RADIOACTIVE TAGGING.] *Zool. Zhur.* 47(11): 1701-1706, illus. 1968. [From Biol. Abstr. 50(11), 1969. In Russian with English summ.] *WR 136: 22*
[Inst. Epidemiol. Microbiol., Acad. Med. Sci. USSR, Moscow, USSR.]

Löbmann, Peter. QUANTITATIVE UNTERSUCHUNGEN AN DER ROTELMAUS, *CLETHRIONOMYS GLAREOLUS* (SCHREBER, 1780). [QUANTITATIVE INVESTIGATIONS ON *CLETHRIONOMYS GLAREOLUS.*] *Z. Säugetierk.* 33(3): 129-149, illus. 1968. [From Biol. Abstr. 50(5), 1969. In German with English summ.] *WR 136: 22*
[Dr. Senckenbergischen Anat. Inst., Univ., Frankfort/Main, Germany.]

Martinet, Lise. CYCLE SAISONNIER DE REPRODUCTION DU CAMPAGNOL DES CHAMPS *MICROTUS ARVALIS.* [SEASONAL REPRODUCTION OF THE FIELD VOLE *(MICROTUS ARVALIS).*] *Ann. Biol. Anim. Biochim. Biophys.* 7(3): 245-259, illus. 1967. [From Biol. Abstr. 50(4), 1969. In French with English summ.] *WR 136: 22*

Massoia, Elio, and Abel Fornes. REODORES RECOLECTADOS EN LA CAPITAL FEDERAL (CAVIIDAE, CRICETIDAE Y MURIDAE). [RODENTS OF THE CAVIIDAE, CRICETIDAE AND MURIDAE FAMILIES IN THE CAPITAL OF ARGENTINA.] *Idia* (240): 47-53, illus. 1967. [From Biol. Abstr. 50(5), 1969. In Spanish.] *WR 136: 22*
[Inst. Nacl. Technol. Agr. Pecuar., Buenos Aires, Argentina.]

Miller, William C. ECOLOGICAL AND ETHOLOGICAL ISOLATING MECHANISMS BETWEEN *MICROTUS PENNSYLVANICUS* AND *MICROTUS OCHROGASTER* AT TERRE HAUTE, INDIANA. *Am. Midland Nat.* 82(1): 140-148, 1 fig. July 1969. *WR 136: 23*
[P.O. Box 5577, State College Station, Raleigh, N.C.] Abstract: Ecological and ethological factors were compared in two sympatric species of microtine rodents. Occurrence of *M. pennsylvanicus* was associated with higher soil moisture and denser herbaceous ground cover than the occurrence of *M. ochrogaster*. Individuals of *M. pennsylvanicus* were significantly more aggressive and tended to dominate those of *M. ochrogaster*. In intraspecific situations, males of *M. ochrogaster* were significantly more aggressive than males of *M. pennsylvanicus*. Submissive patterns were prevalent in the defensive animals regardless of species or sex. The more aggressive individuals initiated more contact patterns, hence these were usually initiated by *M. pennsylvanicus* in interspecific situations. Ecological and/or ethological factors may serve as possible secondary isolating mechanisms between these two closely related species.

Musser, Guy G. NOTES ON *PEROMYSCUS* (MURIDAE) OF MEXICO AND CENTRAL AMERICA. *Am. Mus. Novitates* 2357: 1-23. 27 Jan. 1969. [From J. Mammal. 50(3), 1969.] *WR 136: 23*

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[Univ. Oslo, Oslo, Norway.]

Nass, Roger D., and Glenn A. Hood. TIME-SPECIFIC TRACER TO INDICATE BAIT ACCEPTANCE BY SMALL MAMMALS. *J. Wildl. Mgmt.* 33(3): 584-588, 1 fig. July 1969. *WR 136: 23*
[Bur. Sport Fisheries & Wildl., Box 244, Hilo, Hawaii.] Abstract: Tests were conducted to find a tracer that would indicate whether small mammals had eaten treated bait within a 24-hour period. A nontoxic acid-base indicator, Bromcresol Green (3,3',5,5'-tetrabromo-*m*-cresolsulfonephthalein) was satisfactory. In the laboratory, grain treated with Bromcresol Green was well accepted by *Peromyscus maniculatus*, *Microtus ochrogaster*, and *M. pennsylvanicus*; predictable areas of the animals' gastrointestinal tracts were colored by the tracer during the first 18 hours after ingestion but were devoid of color by 24 hours. In the field, acceptance of dye-treated bait by 729 animals of five species ranged from 88.5% on the 3rd day after baiting to 43.8% on the 11th day. The apparent decline in acceptance may have been due to fading of the tracer or to a decrease in palatability of the bait. Decomposition of Bromcresol Green on grain from weathering was found to be delayed by overcoating it with Uvinul 490, an ultraviolet filter.

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[Univ. Wis., Madison.]

Ota, Kasio. [SOCIO-ECONOMIC ASPECT OF THE PROBLEMS ON THE RODENT CONTROL IN THE FORESTRY OF HOKKAIDO.] *Bull. Hokkaido Forest Expt. Sta.* 6: 56-68. 1968. [From Biol. Abstr. 50(14), 1969. In Japanese.] *WR 136: 23*
[Hokkaido Forest Expt. Sta., Bibai, Hokkaido, Japan.]

Panteleev, P. A. [OUTBREAKS OF *ARVICOLA TERRESTRIS* L. AND THEIR RELATION TO SOLAR ACTIVITY CYCLES.] *Zhur. Obshch. Biol.* 28(6): 649-657. 1967. [From Biol. Abstr. 50(4), 1969. In Russian with English summ.] *WR 136: 23*
[Inst. Gen. Biol., Acad. Sci. USSR, Moscow, USSR.]

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[Inst. Gen. Biol., Acad. Sci. USSR, Moscow, USSR.]

Phillips, Carleton J. REVIEW OF CENTRAL ASIAN VOLES OF THE GENUS *HYPERACRIUS*, WITH COMMENTS ON ZOOGEOGRAPHY, ECOLOGY, AND ECTOPARASITES. *J. Mammal.* 50(3): 457-474, 7 figs. Aug. 1969. *WR 136: 24*
[Univ. Kans., Lawrence.]

Shiraishi, Satoshi. [NEST BUILDING HABIT OF THE JAPANESE HARVEST MOUSE, *MICROMYS MINUTUS JAPONICUS* THOMAS, IN KYÛSHÛ.] *Bull. Govt. Forest Expt. Sta.* (Tokyo, Japan) no. 220. p. 1-10, 3 figs. + 4 pls. Mar. 1969. In Japanese with English summ. *WR 136: 24*

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[Univ. Helsinki, Helsinki, Finland.]

Watts, C. H. S. THE REGULATION OF WOOD MOUSE *(APODEMUS SYLVATICUS)* NUMBERS IN WYTHAM WOODS, BERKSHIRE. *J. Animal Ecol.* 38(2): 285-304, 14 figs. June 1969. *WR 136: 24*
[Inst. Med. Vet. Sci., Adelaide, South Australia.] Spring densities varied greatly, but autumn densities were similar in most years. Density increased rapidly in the autumn due to greatly improved juvenile survival. The higher the spring density, the later the autumn build-up began, resulting in stable fall populations.--From summ.

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RATTUS & MUS

Caslick, J. W., and W. R. Eadie. HOW TO CONTROL MOUSE DAMAGE IN CONIFERS. [*N.Y.*] *Conservationist* 24(1): 48. Aug.-Sept. 1969. *WR 136: 24*
[N.Y. State Coll. Agr., Ithaca.] Corn treated with zinc phosphide is an effective mouse bait. The bait should be distributed in bait stations made from quart oil cans or paper milk cartons.

Krishnamurthy, K., V. Uniyal, Jagvir Singh, and S. V. Pingale. STUDIES ON RODENTS AND THEIR CONTROL. I. STUDIES ON RAT POPULATION AND LOSSES OF FOOD OF FOOD GRAINS. *Bull. Grain Technol.* 5(3): 147-153. 1967. [From Biol. Abstr. 50 (14), 1969.] *WR 136: 24*
[Grain Storage & Train. Cent., Hapur, Uttar Pradesh, India.] *"Rattus rattus."*

Lim, B. L. OCCURRENCE OF *ANGIOSTRONGYLUS CANTONENSIS* IN RATS AROUND KUCHING, SARAWAK. *Ann. Trop. Med. Parasitol.* 61(4): 429-431. 1967. [From Biol. Abstr. 50(1), 1969.] *WR 136: 24*
[Inst. Med. Res., Kuala Lumpur, Malaysia.] *"Rattus* spp."

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[CSIRO, Canberra, Australia.] Breeding occurred only after rains had softened the field sufficiently for burrowing. Mice emigrated as conditions deteriorated in winter.--From summ.

Newsome, A. E. A POPULATION STUDY OF HOUSE-MICE PERMANENTLY INHABITING A REED-BED IN SOUTH AUSTRALIA. *J. Animal Ecol.* 38(2): 361-377, 6 figs. + 1 pl. June 1969. *WR 136: 24*
[CSIRO, Canberra, Australia.] In contrast to a nearby wheatfield in South Australia, populations of house-mice lived all year round in a reed-bed which constituted a winter-refuge for the species when the wheatfields became too wet, and a springboard for the field's re-invasion in spring and summer.--From summ.

Norman, F. I., and R. V. Baudinette. WATER ECONOMY AND SALT BALANCE OF AN INSULAR POPULATION OF *RATTUS RATTUS* LINNAEUS. *J. Mammal.* 50(3): 487-493, 4 figs. Aug. 1969. *WR 136: 25*
[Monash Univ., Clayton, Victoria, Australia.] Abstract: *Rattus rattus* inhabiting an island off Tasmania depend on a supply of exogenous water for survival. Sea water was not accepted, although some animals maintained a reduced body weight on a 75 per cent sea water solution. The kidney appears structurally unsuited for the production of concentrated urine. Mean maximum urine concentration, obtained while the animals were maintaining body weight on the minimum tap water requirement, was only 2847 milliosmoles per liter. It is concluded that the distribution of *Rattus rattus* in Australia is limited by the availability of standing water or vegetation capable of supplying their exogenous water requirements.

Richter, Curt P. EXPERIENCES OF A RELUCTANT RAT-CATCHER: THE COMMON NORWAY-RAT: FRIEND OR ENEMY (ECONOMIC IMPORTANCE, CONTROL, POISONS)? *Proc. Am. Phil. Soc.* 112(6): 403-415. 1968. [From Biol. Abstr. 50(15), 1969.] *WR 136: 25*
[Johns Hopkins Med. Sch., Baltimore, Md.]

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[Univ. Wyo., Laramie.]

Clothier, Ronald R. REPRODUCTION IN THE GRAY-NECKED CHIPMUNK, *EUTAMIAS CINEREICOLLIS*. *J. Mammal.* 50(3): 642. Aug. 1969. *WR 136: 25*
[Ariz. State Univ., Tempe.]

Davidson, A. M. RED SQUIRRELS IN THETFORD CHASE. *Quart. J. Forestry* 62(3): 214-225, illus. 1968. [From Biol. Abstr. 50(1), 1969.] *WR 136: 25*

Flyger, Vagn. THE 1968 SQUIRREL "MIGRATION" IN THE EASTERN UNITED STATES. *Trans. NE Sect. Wildl. Soc., 26th NE Fish & Wildl. Conf. 9-12 Feb. 1969.* p. 69-79, 1 fig. 1969. *WR 136: 25*
[Univ. Md., College Park.] Abstract: Gray squirrels *(Sciurus carolinensis)* were reported to be unusually active in the fall of 1968 throughout much of the eastern United States. This study reports on investigations from North Carolina to New York. Sex and age ratios varied widely. Specimens examined exhibited no unusual pathological conditions nor an abnormal number of parasites. Food supplies were adequate. Movements were not directional. Survival benefits of such emigrations are discussed.

Hansen, Richard M., and Lloyd D. Reed. ENERGY ASSIMILATION IN RICHARDSON GROUND SQUIRRELS. *Am. Midland Nat.* 82(1): 290-293. July 1969. *WR 136: 25*
[Colo. State Univ., Fort Collins.] Abstract: The feeding efficiency and energy assimilation of young *Citellus richardsonii* were measured in the laboratory and energy loss during hibernation was estimated by weight losses. These ground squirrels gain about 6 g per squirrel per day at 20 C when feeding and lose about 0.7 g per squirrel per day at 4 C when hibernating. The average values computed per 100 g body weight per day are: Dry weight of food consumed = 13 g; ration gross energy = 54 kcal; dry weight of feces excreted = 3.5 g; fecal energy = 15 kcal; body weight gain = 4.4 g; water consumed = 6.5 g; body weight loss in hibernation = 0.4 g. It is estimated that adult squirrels gain at least 200 g each year and young gain at least 300 g each year under natural conditions. Under

conditions of high density, population die-offs that shift adult-young ratios from mostly young to mostly adults can be interpreted as a mechanism for placing less demand upon the limited food energy resources of the environment.

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[State Game Res. Inst., Helsinki, Finland.]

Ludwick, Ronald L., J. P. Fontenot, and Henry S. Mosby. ENERGY METABOLISM OF THE EASTERN GRAY SQUIRREL. *J. Wildl. Mgmt.* 33(3): 569-575, 2 figs. July 1969. *WR 136: 26*
[Va. Polytechnic Inst., Blacksburg.] Abstract: Two feeding experiments were performed with adult and immature gray squirrels *(Sciurus carolinensis)*. In the first experiment 18 adult squirrels, fed at three planes of nutrition (33, 67, and 100% of ad libitum), were used to determine the maintenance energy requirements and the effect of plane of nutrition on the metabolizable and net energy values, using a commercial laboratory rodent diet (4.125 kcal/g). The average metabolizable energy value for all planes of nutrition for adult squirrels was 2.992 kcal/g, and 71.8% of the gross energy was metabolized. Net energy values varied considerably among levels of feed intake and methods of calculation. The maintenance energy requirement for a 500 g squirrel was calculated to be about 107 kcal/day of metabolizable energy or 33.3 g/day of the experimental food. Voluntary intake in calories (about 203 kcal) exceeded the maintenance requirement by about 32%. In the second experiment, 24 immature squirrels were used to determine the effect of plane of nutrition (64, 76, 88, and 100% ad libitum) on the digestible and metabolizable energy values of the diet. Analysis of variance showed that the influence of the level of food intake was not significant both for the digestible and metabolizable energy values ($P>0.05$). The mean values were 3.535 kcal/g and 3.444 kcal/g for the digestible and metabolizable energy values, respectively. A 42% decrease of average food intake between January and March was noted in six ad libitum fed immature squirrels. Approximately 35% of the squirrels trapped and held through the adjustment period died prior to the beginning of the feeding trials.

Melchior, Herbert R. ALARM CALLS FOR ARCTIC GROUND SQUIRRELS. *Am. Zool.* 8 (4): 743. Nov. 1968. [From J. Mammal. 50(3), 1969.] *WR 136: 26*
Abstract only.

Mikhailyuta, A. A. [METHOD OF AGE DETERMINATION IN ALTAI MARMOTS *(MARMOTA BAIBACINA)*.] *Zool. Zhur.* 47(6): 932-934, illus. 1968. [From Biol. Abstr. 50 (5), 1969. In Russian with English summ.] *WR 136: 26*
Bone microstructure and dental tissues.

Muul, Illar. PHOTOPERIOD AND REPRODUCTION IN FLYING SQUIRRELS, *GLAUCOMYS VOLANS*. *J. Mammal.* 50(3): 542-549, 1 fig. Aug. 1969. *WR 136: 26*
[U.S. Army Med. Res. Unit, Inst. Med. Res., Kuala Lumpur, Malaysia.] Abstract: In Michigan and Massachusetts, flying squirrels, *Glaucomys volans*, have two peaks in breeding activity; the first peak in the number of litters is in April and the second in August. All 19 males examined from March through July had scrotal testes, but only two of eight from August through November and five of 12 from December through February. Experimental data indicate that long photoperiods, beginning in September, inhibited testicular descent during the normal breeding season. The normal, seasonal reproductive cycle was maintained in the absence of temperature cues. Testicular descent in males was hastened with accelerated decreases in photoperiod. Reproduction was induced 6 months out of phase when animals were exposed to photoperiods 6 months out of phase with the seasons.

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Reddi, A. H., and M. R. N. Prasad. THE REPRODUCTIVE CYCLE OF THE MALE INDIAN PALM SQUIRREL, *FUNAMBULUS PENNANTI* WROUGHTON. *J. Reproduction & Fertility* 17 (2): 235-245. Nov. 1968. [From J. Mammal. 50(3), 1969.] *WR 136: 27*

Shiranovich, P. I. [CAUSES FOR THE FALL IN THE NUMBER OF LITTLE SOUSLIK *(CITELLUS PIGMAEUS)* IN THE SEMIDESERT OF NORTH-WESTERN CASPIAN FORELAND.] *Zool. Zhur.* 47(10): 1539-1548, illus. 1968. [From Biol. Abstr. 50(13), 1969. In Russian with English summ.] *WR 136: 27*
[Rostov-on-Don State Res. Antiplague Inst., Rostov-on-Don, USSR.]

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[Univ. Ill., Urbana.]

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BEAVER

Borodina, M. N. [EXPERIENCE IN THE USE OF MORPHOMETRIC PARAMETERS TO ESTIMATE THE COMPOSITION OF THE MOKSHI RIVER BEAVER POPULATION.] *Trudy Mord. Gos. Zapovednika* 3: 39-54. 1966. [From Biol. Abstr. 50(9), 1969, from Referat. Zhur., Biol., 1968, no. 10I541. Transl. of Russian abstr.] *WR 136: 27*

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[Univ. Wis., Madison.]

MUSKRAT & NUTRIA

Abram, James B. SOME GASTROINTESTINAL HELMINTHS OF *ONDATRA ZIBETHICUS* LINNAEUS, THE MUSKRAT IN MARYLAND. *Proc. Helminthol. Soc. Washington* 36(1): 93-95. Jan. 1969. [From J. Mammal. 50(3), 1969.] *WR 136: 27*

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[Inst. Zool., Acad. Sci. Azerbaijan, Baku, Azerbaijan, SSR.]

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Earhart, Caroline M. THE INFLUENCE OF SOIL TEXTURE ON THE STRUCTURE, DURABILITY, AND OCCUPANCY OF MUSKRAT BURROWS IN FARM PONDS. *Calif. Fish & Game* 55 (3): 179-196, 10 figs. July 1969. *WR 136: 28*
[Univ. Calif., Berkeley.] Damage might be controlled if the dam and other burrow sites were covered with a foot or more of sand, preventing effective construction of breeding burrows.--From abstr.

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FUR ANIMALS, GENERAL

Geller, M. Kh., and V. D. Skrobov. METHODS OF DEVELOPING AND INCREASING THE PRODUCTIVITY OF THE FUR INDUSTRY IN THE FAR NORTH. *Problems of the North* (11): 19-45. June 1968. *WR 136: 28*
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BEARS

Butterworth, Bernard B. POSTNATAL GROWTH AND DEVELOPMENT OF *URSUS AMERICANUS*. *J. Mammal.* 50(3): 615-616. Aug. 1969. *WR 136: 28*
[Univ. Mo., Kansas City.]

Carpenter, Max. RECENT RETURNS FROM A TEN-YEAR BEAR TAGGING STUDY. *Trans. NE Sect. Wildl. Soc., 26th NE Fish & Wildl. Conf. 9-12 Feb. 1969.* p. 41-44. 1969. *WR 136: 28*
[Va. Comm. Game & Inland Fisheries, Richmond.] Abstract: A black bear *(Ursus americanus)* tagging study in the mountains of Virginia from 1958 to 1960 was part of a research project to determine to what degree the population was being reduced by legal harvest. One hundred catches were made during the three summers. Six specimens were trapped twice: two, three times. Seven died during trapping/marking operations. Eighty-three tagged individuals were successfully released. This report deals with sex ratios, longevity, and movement of those taken, and reported, by hunters from 1958 to 1968.

Heran, Ivan. ZUM VERHALTEN IN GEFANGENSCHAFT AUFGEWACHSENER BRAUNBAREN. [BEHAVIOR OF AN ADULT BROWN BEAR RAISED IN CONFINEMENT.] *Zool. Garten* 33(1/3): 132-137, illus. 1966. [From Biol. Abstr. 50(5), 1969. In German.] *WR 136: 28*

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[Inst. Marine Biol., Oslo, Norway.]

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[Inst. Marine Biol., Oslo, Norway.]

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MUSTELIDS

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[Univ. Exeter, Exeter, Devon, England.]

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Jacobson, Jerald O. APPLICATION OF A NIGHTTIME ROADSIDE CENSUS TO STRIPED SKUNK POPULATION STUDIES. *M.S. thesis, N. Dak. State Univ.* 83 p. 1969. *WR 136: 29*
Courtesy/ E. C. Meslow.

Knopf, F. L., and D. F. Balph. BADGERS PLUG BURROWS TO CONFINE PREY. *J. Mammal.* 50(3): 635-636. Aug. 1969. *WR 136: 29*
[Utah State Univ., Logan.]

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[Univ. Idaho, Moscow.]

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[96 Glen Road, Oadby, Leicester, England.] *"Meles meles."*

Progulske, Donald R. OBSERVATIONS OF A PENNED, WILD-CAPTURED BLACK-FOOTED FERRET. *J. Mammal.* 50(3): 619-621. Aug. 1969. *WR 136: 29*
[S. Dak. State Univ., Brookings.]

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Courtesy/ E. C. Meslow.

van Bree, P. J. H. EINIGE BEMERKUNGEN UEBER DEN GLATTOTTER, *LUTROGALE PERSPICILLATA* (IS. GEOFFROY, 1826) (CARNIVORA, LUTRINAE), AUS DEM INDO-AUSTRALISCHEN ARCHIPEL. [SEVERAL REMARKS ON *LUTROGALE PERSPICILLATA* (CARNIVORA, LUTRINAE), FROM THE INDO-AUSTRALIAN ARCHIPELAGO.] *Zool. Garten* 35(1/2): 30-36, illus. 1968. [From Biol. Abstr. 50(6), 1969. In German with English summ.] *WR 136: 29*

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[Moscow Soc. Naturalists, Moscow, USSR.] Transl. of Problemy Severa (11): 111-113. 1967. [See Belkov, *WR 136: 8*, as to availability of this translation from the Russian.]

Englund, Jan. THE DIET OF FOX CUBS *(VULPES VULPES)* IN SWEDEN. *Viltrevy* 6 (1): 1-39, 2 figs. Apr. 1969. In English with Swedish summ. *WR 136: 30*
[Swedish Mus. Nat. Hist., Stockholm, Sweden.] Contents of 243 stomachs were examined and identified. Food items were grouped according to age of animal (young cub, older cub, adult), and location of capture, in one of four counties. Hares, rabbits, and rodents were primary food items, with birds, insects, reptiles, fish, vegetative matter, and garbage occurring as well.

Haltenorth, T., and H. H. Roth. SHORT REVIEW OF THE BIOLOGY AND ECOLOGY OF THE RED FOX *CANIS (VULPES) VULPES* LINNAEUS 1758. *Säugetierk. Mitteil.* 16(4): 339-352, illus. 1968. [From Biol. Abstr. 50(16), 1969.] *WR 136: 30*
[Zool. Staatssammlung, Munich, Germany.]

Jensen, Birger. PRELIMINARY RESULTS FROM THE MARKING OF FOXES *(VULPES VULPES L.)* IN DENMARK. *Danish Rev. Game Biol.* 5(4). 8 p., 2 figs. 1968. In English with Danish and Russian summ. *WR 136: 30*
The majority of foxes never range as far afield as 10 km, while possibly only one in ten ever strays farther than 25 km from its place of birth.--From summ.

Jensen, Birger, and Lise Brunberg Nielsen. AGE DETERMINATION IN THE RED FOX *(VULPES VULPES L.)* FROM CANINE TOOTH SECTIONS. *Danish Rev. Game Biol.* 5(6). 15 p., 20 figs. 1968. In English with Danish and Russian summ. *WR 136: 30*
Of 522 foxes collected, 518 could be relegated to specific age groups from the degree of fusion of the epiphyses of the radius and from sections of teeth prepared for the microscope.

Kasatkin, V. I. [FEEDING OF THE FOX IN THE SEMI-DESERT OF SOUTHEASTERN TRANSCAUCASIA.] *Zool. Zhur.* 48(2): 300-303. 1969. [From Biol. Abstr. 50(15), 1969. In Russian with English summ.] *WR 136: 30*

Kubiak, Henryk. POJAWIENIE SIE JENOTA, *NYCTEREUTES PROCYONOIDES* (GRAY, 1834) W WOJEWODZTWIE KRAKOWSKIM. [THE APPEARANCE OF RACCOON DOG, *NYCTEREUTES PROCYONOIDES* (GRAY, 1834) IN CRACOW DISTRICT (POLAND).] *Przegl. Zool.* 9(4): 417-422, illus. 1965. [From Biol. Abstr. 50(16), 1969. In Polish with English summ.] *WR 136: 30*
[Zakl. Zool. Syst., Polish Acad. Sci., Cracow, Poland.]

Shilyaeva, L. M. STUDYING THE MIGRATION OF THE ARCTIC FOX. *Problems of the North* (11): 103-112, 4 figs. June 1968. *WR 136: 30*
Transl. of Problemy Severa (11): 91-98. 1967. [See Belkov, *WR 136: 8*, as to availability of this translation from the Russian.]

Skrobov, V. D., and E. A. Shirokovskaya. THE ROLE OF THE ARCTIC FOX IN IMPROVING THE VEGETATION COVER OF THE TUNDRA. *Problems of the North* (11): 123-128. June 1968. *WR 136: 30*
Transl. of Problemy Severa (11): 107-110. 1967. [See Belkov, *WR 136: 8*, as to availability of this translation from the Russian.]

Smirnov, V. S. ANALYSIS OF ARCTIC FOX POPULATION DYNAMICS AND METHODS OF INCREASING THE ARCTIC FOX HARVEST. *Problems of the North* (11): 81-101, [1 fig.]. June 1968. *WR 136: 30*
[Inst. Plant & Animal Ecol., Urals Branch Acad. Sci., USSR.] Transl. of Problemy Severa (11): 70-90. 1967. [See Belkov, *WR 136: 8*, as to availability of this translation from the Russian.]

DOGS, WOLVES, FOXES--Continued

Syuzyumova, L. M. EPIZOOTIOLOGY OF RABIES AMONG ARCTIC FOXES ON THE YAMAL PENINSULA. *Problems of the North* (11): 113-121, [1 fig.]. June 1968. *WR 136: 31*
[Inst. Plant & Animal Ecol., Urals Branch Acad. Sci., USSR.] Transl. of Problemy Severa (11): 99-106. 1967. [See Belkov, *WR 136: 8*, as to availability of this translation from the Russian.]

CATS

Hornocker, Maurice G. WINTER TERRITORIALITY IN MOUNTAIN LIONS. *J. Wildl. Mgmt.* 33(3): 457-464, 1 fig. July 1969. *WR 136: 31*
[Bur. Sport Fisheries & Wildl., Moscow, Idaho.] Abstract: This paper, covering the first 4 years of a continuing study, reports on preliminary findings concerning territoriality and its function in a mountain lion *(Felis concolor)* population. The research was carried out in the Idaho Primitive Area in central Idaho. Forty-three different lions were captured and marked during four winter and early spring seasons. Thirty-one individuals were recaptured 89 times, making a total of 132 captures during the study. Nine resident adults, captured a total of 59 times, provided the bulk of the data on home range and territoriality. Minimum size of the males' winter home range was constant from year to year, but it varied for females, depending upon their reproductive status. The smallest winter home range for a female, during a single season, was approximately 5 square miles, the largest approximately 20 square miles. Males utilized larger areas. Resident male lions occupied distinct winter territories without overlap, but resident females shared some common areas. Male territories overlapped those of females. Lions exhibited a high degree of tolerant but unsocial behavior. No evidence of territorial defense was noted. Transient lions of both sexes moved freely through occupied territories. A mutual avoidance behavioral mechanism acted to distribute lions in both time and space. Visual and olfactory marks serve to facilitate avoidance between lions.

Kumerloeve, Hans. ZUM VORKOMMEN DER WILDKATZE, *FELIS SILVESTRIS* SCHREBER, 1777, IN SIZILIEN. [ON THE OCCURRENCE OF *FELIS SILVESTRIS* SCHREBER, 1777, IN SICILY.] *Säugetierk. Mitteil.* 16(4): 297-301. Oct. 1968. [From J. Mammal. 50 (3), 1969. In German with English summ.] *WR 136: 31*

Marma, B. B., and V. V. Yunchis. [BIOLOGY OF THE SNOW LEOPARD *(PANTHERA UNCIA UNCIA)* BASED ON OBSERVATIONS MADE IN CAPTIVITY.] *Zool. Zhur.* 47(11): 1689-1694, illus. 1968. [From Biol. Abstr. 50(13), 1969. In Russian with English summ.] *WR 136: 31*
[Kaunass Zool. Garden, Kaunass, USSR.]

Nellis, Carl H., and Stephen P. Wetmore. LONG-RANGE MOVEMENT OF LYNX IN ALBERTA. *J. Mammal.* 50(3): 640. Aug. 1969. *WR 136: 31*
[Univ. Wis., Madison.]

Rukovskii, N. N. [SOME PROBLEMS OF BIOLOGY OF THE AMUR TIGER *(PANTHERA TIGRIS LONGIPILIS)* RELATED TO THE PROTECTION OF THIS SPECIES.] *Zool. Zhur.* 47(5): 786-788. 1968. [From Biol. Abstr. 50(7), 1969. In Russian with English summ.] *WR 136: 31*
[V. I. Lenin Moscow State Pedagog. Inst., Moscow, USSR.]

BIG GAME, GENERAL

Almăsan, Horia A. CĂPRIORUL--MICĂ MONOGRAFIE. [ROE DEER--SMALL MONOGRAPH.] *Asoc. Generală Vînătorilor & Pescarilor Sportivi.* 293 p., 170 figs. 1967. In Romanian. *WR 136: 31*
[Inst. Forest Res., Bucharest, Romania.] A monograph on the description, biology and management of *Capreolus capreolus* in Romania.

Almăsan, H., and I. Boghez. CERCETĂRI PRIVIND PAGUBELE CAUZATE DE CERVIDEE ÎN CULTURILE FORESTIERE. [AN INQUIRY INTO THE DAMAGE CAUSED BY CERVIDAE IN FOREST STANDS.] *Bul. Inst. Politehnic Brasov* 10(1968) Ser. B. p. 87-95, 2 figs. + 1 pl. 1968. In Romanian with French and English summ. *WR 136: 32*

Bayless, Stephen R. WINTER FOOD HABITS, RANGE USE, AND HOME RANGE OF ANTELOPE IN MONTANA. *J. Wildl. Mgmt.* 33(3): 538-551, 4 figs. July 1969. *WR 136: 32*
[Mont. Dept. Fish & Game, Havre.] Abstract: A study of the food habits, range use, and home range of pronghorn antelope *(Antilocapra americana)* with emphasis on the winter period was conducted in 1966-67 in Montana. Quantitative measurements of canopies and densities of taxa were made in five of the eight vegetation types available to antelope. The sagebrush-grassland type received most of the use by antelope, both in summer and winter. Most winter observations were in vegetation types where sagebrush was common. The winter diet, determined by plant utilization, consisted of 93% shrubs, 6% forbs, and a minor amount of grass. The diet, determined by analysis of rumen contents, consisted of 78% shrubs, 19% forbs, and a small amount of grass. Big sagebrush *(Artemisia tridentata)* provided 45% of the antelope food in winter. Results of five summer aerial censuses showed 32 male antelope per 100 females and 74 fawns per 100 females. Poor body condition of antelope and some fawn mortality in winter was possibly related to quality of sagebrush in the diet. Winter home-range size was determined for each of 16 individually marked antelope, three using telemetry. Eight of the marked antelope "shifted" their home range at least once. A yearling female had a home-range size of 5,574 acres and a yearling male, 4,160 acres. Six adult females had an average home-range size of 2,841 acres; three fawn females, 2,417 acres; and five fawn males, 1,580 acres.

Bosold, Klaus. GESCHLECHTSUND GATTUNGSUNTERSCHIEDE AN METAPODIEN UND PHALANGEN MITTELEUROPAISCHER WILDWIEDERKAUER. [SEX GENUS DIFFERENCES OF METAPODIALS AND PHALANGES OF CENTRAL EUROPEAN WILD RUMINANTS.] *Säugetierk. Mitteil.* 16(2): 93-153, illus. 1968. [From Biol. Abstr. 50(13), 1969. In German with English summ.] *WR 136: 32*
[Univ. Munich, Munich, Germany.]

Canadian Wildlife Service. LAND CAPABILITY FOR WILDLIFE--UNGULATES. *Canada Land Inventory, A.R.D.A.* Cover + 7-color multifold map. Available from the Queen's Printer, Ottawa. Price 35¢. 1969. *WR 136: 32*
Land areas are color-classified into seven capability classes according to potential limitations to the production of wild ungulates. The first map of the series, scale 1:250,000, is in the region of Edmonton, Alberta.

Caughley, G. BREEDING SEASONS OF UNGULATES. *1967 Rept. Forest Res. Inst.* (Rotorua). p. 62. 1968. [From J. Mammal. 50(3), 1969.] *WR 136: 32*
Abstract only.

Caughley, G. POPULATION DYNAMICS OF THAR. *1967 Rept. Forest Res. Inst.* (Rotorua). p. 61-62. 1968. [From J. Mammal. 50(3), 1969.] *WR 136: 32*
Abstract only.

Chaplin, Raymond E., and Robert W. G. White. [THE USE OF TOOTH ERUPTION AND WEAR, BODY WEIGHT AND ANTLER CHARACTERISTICS IN THE AGE OF MALE WILD AND PARK FALLOW DEER *(DAMA DAMA).*] *J. Zool.* 157(1): 125-132, illus. 1969. [From Biol. Abstr. 50(14), 1969.] *WR 136: 32*
[Anat. School, Cambridge, England.]

Chapman, D. I., and M. T. Horwood. PREGNANCY IN A SIKA DEER CALF, *CERVUS NIPPON. J. Zool.* 155(2): 227-228. 1968. [From J. Mammal. 50(3), 1969.] *WR 136: 32*

Chernyavskii, F. B. ECOLOGY OF BIGHORN SHEEP AND THEIR VALUE AS A GAME ANIMAL ON THE KORYAK UPLAND. *Problems of the North* (11): 155-168, 2 figs. June 1968. *WR 136: 33*
[Zool. Inst., Acad. Sci. USSR.] Transl. of Problemy Severa (11): 128-141. 1967. [See Belkov, *WR 136: 8*, as to availability of this translation from the Russian.]

Douglas, M. J. W. AGEING OF DEER BY DENTAL CEMENT LAYERS. *1967 Rept. Forest Res. Inst.* (Rotorua). p. 62-63. 1968. [From J. Mammal. 50(3), 1969.] *WR 136: 33*
Abstract only.

Frädrich, Hans. EINIGE VERHALTENSBEOBACHTUNGEN AM MOSCHUSTIER *(MOSCHUS MOSCHIFERUS* L.). [SEVERAL OBSERVATIONS IN THE BEHAVIOR OF *MOSCHUS MOSCHIFERUS* L.] *Zool. Garten* 33(1/3): 65-78, illus. 1966. [From Biol. Abstr. 50(2), 1969. In German with English summ.] *WR 136: 33*
[Zool. Garten, Frankfort/Main, Germany.] "Musk deer."

Hagen, Karl. ZUR WIEDEREONBÜRGERUNG DES STEINWILDES IN ÖSTERREICH. [ON REESTABLISHMENT OF THE ALPINE IBEX IN AUSTRIA.] *Cent. Gesamte Foretwesen* 84(2/6): 150-155. 1967. [From Biol. Abstr. 50(2), 1969. In German with English summ.] *WR 136: 33*
[Hochsch. Bodendkult., Vienna, Austria.]

Heck, L. IMMOBILISATION EINER HARTMANN-BERGZERBRASTUTE *(EQUUS ZEBRA HARTMANNAE* MTSCH.) MIT HILFE DER CAP CHUR AUN IM TIERPARK HELLABRUNN, MÜNCHEN. [IMMOBILIZATION OF A HARTMANN'S MOUNTAIN ZEBRA MARE *(EQUUS ZEBRA HARTMANNAE* MTSCH.) WITH THE HELP OF A CAP CHUR GUN IN THE HELLABRUNN ANIMAL PARK IN MUNICH.] *Zool. Garten* 32(4): 159-162, illus. 1966. [From Biol. Abstr. 50(1), 1969. In German.] *WR 136: 33*
[Tierpark, Munich, Germany.]

Helle, Reijo. AN INVESTIGATION OF REINDEER HUSBANDRY IN FINLAND. *Fennia* 95: 1-61, illus. 1965/67. [From Biol. Abstr. 50(1), 1969.] *WR 136: 33*

Hemming, James E. CEMENTAL DEPOSITION, TOOTH SUCCESSION, AND HORN DEVELOPMENT AS CRITERIA OF AGE IN DALL SHEEP. *J. Wildl. Mgmt.* 33(3): 552-558, 4 figs. July 1969. *WR 136: 33*
[Alaska Dept. Fish & Game, Anchorage.] Abstract: Patterns of cementum, tooth succession, and external and internal horn annuli were studied in 129 specimens of Dall sheep *(Ovis dalli)*. Fluoromicroscopy of annually produced cemental layers may be used to estimate age of all sheep older than 1 year. During the first 4 years of life age can be determined from the sequence of incisor replacement. Counts of annual horn increments provide a means of estimating age, but may be difficult to distinguish in older animals, particularly females.

Houston, Douglas B. IMMOBILIZATION OF THE SHIRAS MOOSE. *J. Wildl. Mgmt.* 33 (3): 534-537. July 1969. *WR 136: 33*
[Natl. Park Serv., Moose, Wyo.] Abstract: A total of 117 Shiras moose *(Alces alces shirasii)* was immobilized with succinylcholine chloride from September, 1963, to March, 1967, in the Jackson Hole area, Wyoming. Minimum mortality occurred when dosages were varied by time of year within age-classes. Dosages producing optimum immobilization in adults during late spring to mid-winter periods were 15-17 mg; subadults, 12-14 mg; calves, 9-11 mg. Dosages were reduced by 20-30% during late winter to early spring periods.

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Ikeda, Shinjiro, and Takeshi Iimura. [ECOLOGICAL ANALYSIS OF THE ENVIRONMENT FOR DEER *CERVUS NIPPON CENTRALIS* KISHIDA / HABITAT IN RELATION TO ITS HUNTING AND FOREST UTILIZATION (MAINLY IN THE NIKKO NATIONAL HUNTING AREA).] *Bull. Govt. Forest Expt. Sta.* (Tokyo, Japan) no. 220. p. 59-119, 42 figs. + 3 pls. Mar. 1969. In Japanese with English summ. *WR 136: 34*

Climatic conditions, geology, topography, and vegetation were studied in relation to deer habitat, forest management, and the population statistics of the deer.--From summ.

Ito, Takeo. ECOLOGICAL STUDIES ON THE JAPANESE DEER, *CERVUS NIPPON CENTRALIS* KISHIDA ON KINKAZAN ISLAND: II. CENSUS AND HERD SIZE. *Bull. Mar. Biol. Sta. Asamushi Tohoku Univ.* 13(2): 139-149. 1968. [From Biol. Abstr. 50(1), 1969.] *WR 136: 34*

[Tohoku Univ., Aomori City, Japan.]

Jensen, Poul Valentin. FOOD SELECTION OF THE DANISH RED DEER *(CERVUS ELAPHUS* L.*)* AS DETERMINED BY EXAMINATION OF THE RUMEN CONTENT. *Danish Rev. Game Biol.* 5(3). 44 p., 19 figs. 1968. In English with Russian summ. *WR 136: 34*

[Zool. Mus., Copenhagen, Denmark.] Grasses, especially *Deschampsia flexuosa*, dominate as fodder in both forest and dune plantation sample locations. Dwarf shrubs are the second most important food group, especially in the winter.

Kalevi, Loisa, and Erkki Pulliainen. WINTER FOOD AND MOVEMENTS OF TWO MOOSE *(ALCES ALCES* L.*)* IN NORTHEASTERN FINLAND. *Ann. Zool. Fenn.* 5(2): 220-223, illus. 1968. [From Biol. Abstr. 50(1), 1969.] *WR 136: 34*

[Univ. Helsinki, Helsinki, Finland.]

Kishchinskii, A. A. DISTRIBUTION OF WILD UNGULATES IN NORTHEASTERN SIBERIA. *Problems of the North* (11): 169-178, 2 figs. June 1968. *WR 136: 34*

[Zool. Inst., Acad. Sci. USSR.] Transl. of Problemy Severa (11): 142-148. 1967. [See Belkov, *WR 136: 8*, as to availability of this translation from the Russian.]

Kornyeyev, O. P., and Ts. Yu. Krychevs'ka. [FEATURES OF THE DIET OF THE WILD BOAR IN THE UKRAINE.] *Visn Kyyiv K Univ. Ser. Biol.* 9: 150-154. 1967. [From Biol. Abstr. 50(11), 1969, from Referat. Zhur., Biol., 1968, no. 101572. Transl. of Russian summ.] *WR 136: 34*

Kostron, Karel, and Josef Hromas. OTAZKY BIONOMIE OBORNI SRNCI ZVERE BAZANTNICE SOKOLNICKE: II. [BIONOMY OF GAME-PRESERVE ROES IN THE SOKOLNICE PHEASANT-RUN: II.] *Sbornik Vys. Sk. Zemed. Brne Rada C. Spisy Fak. Les.* 3: 257-271, illus. 1966. [From Biol. Abstr. 50(14), 1969. In Czech with Russian and German summ.] *WR 136: 34*

[Katedra Ochr. Lesu Myslivosti, Sk. Zemed., Brno, Czechoslovakia.]

Kurt, Fred. DES SOZIALVARHALTEN DES REHES *(CAPREOLUS CAPREOLUS* L.*)*. EINE FELDSTUDIE. [THE SOCIAL BEHAVIOR OF THE DEER *(CAPREOLUS CAPREOLUS* L.*)*. A FIELD STUDY.] *Paul Parey* (Hamburg & Berlin). 95 p., illus. 1968. Price DM 28. [From Biol. Abstr. 50(6), 1969. In German.] *WR 136: 34*

Lau, Dieter. BEITRAG ZUR GEWEIHENTWICKLUNG UND FORTPFLANZUNGSBIOLOGIE DER HIRSCHE. [CONTRIBUTION TO THE DEVELOPMENT OF ANTLERS AND REPRODUCTION OF THE DEER.] *Z. Säugetierk.* 33(4): 193-214, illus. 1968. [From Biol. Abstr. 50(7), 1969. In German with English summ.] *WR 136: 34*

[Tierpark, Berlin, Germany.] Based on observations during 1955-1965 of 18 spp. or sspp.

Lowe, V. P. W. POPULATION DYNAMICS OF THE RED DEER *(CERVUS ELAPHUS* L.*)* ON RHUM. *J. Animal Ecol.* 38(2): 425-457, 9 figs. + 2 pls. June 1969. *WR 136: 34*

[Merlewood Res. Sta., Grange-over-Sands, Lancashire, England.] Nine-year population study of the deer herd on the Isle of Rhum.

Markgren, Gunnar. REPRODUCTION OF MOOSE IN SWEDEN. *Viltrevy* 6(3): 127-299, 57 figs. Apr. 1969. In English with Swedish summ. *WR 136: 35*
[Boda Game Res. Sta., Enånger, Sweden.] Reproductive tracts, mandibles, and statistical data of about 930 female moose were studied. Major headings are: structure and changes of the ovary, breeding season, pregnancy, calving, ability and capacity of reproduction, ovulation rate as a measure of productivity, factors connected with ovulation rate, and ovulation rate in different regions and years.

Martinka, C. J. POPULATION ECOLOGY OF SUMMER RESIDENT ELK IN JACKSON HOLE, WYOMING. *J. Wildl. Mgmt.* 33(3): 465-481, 8 figs. July 1969. *WR 136: 35*
[Glacier Natl. Park, West Glacier, Mont.] A study was conducted from June through September, 1963, and from May through November, 1964, to obtain quantitative data on the distribution, population status, social habits, movements, and habitat relationships of the relatively non-migratory elk *(Cervus canadensis)* of Jackson Hole Valley, Wyoming. The study area and eight major vegetation types were described.--From abstr.

Martinka, C. J. AN INCIDENCE OF MASS ELK DROWNING. *J. Mammal.* 50(3): 640-641. Aug. 1969. *WR 136: 35*
[Glacier Natl. Park, West Glacier, Mont.]

Mensch, Jerry L. DESERT BIGHORN *(OVIS CANADENSIS NELSONI)* LOSSES IN A NATURAL TRAP TANK. *Calif. Fish & Game* 55(3): 237-238, 1 fig. July 1969. *WR 136: 35*
[Calif. Dept. Fish & Game, Sacramento.] Remains of 2 rams, 21 ewes, and 11 lambs were found in an undercut natural tank.

Michurin, L. N. WILD REINDEER AND THE ECONOMY OF THE FAR NORTH. *Problems of the North* (11): 139-147. June 1968. *WR 136: 35*
Transl. of Problemy Severa (11): 118-123. 1967. [See Belkov, *WR 136: 8*, as to availability of this translation from the Russian.]

Pulliainen, Erkki, Kalevi Loisa, and Tauno Pohjalainen. HIRVEN TALVISESTA RAVINNOSTA ITA-LAPISSA. [WINTER FOOD OF THE MOOSE *(ALCES ALCES* L.*)* IN EASTERN LAPLAND (FINLAND).] *Silva Fenn.* 2(4): 235-247, illus. 1968. [From Biol. Abstr. 50(11), 1969. In Finnish with English summ.] *WR 136: 35*

Scotter, George Wilby. EFFECTS OF FOREST FIRES ON THE LICHEN WINTER RANGES OF BARREN-GROUND CARIBOU IN NORTHERN CANADA. *Ph.D. thesis, Utah State Univ.* 143 p. 1968. [From Dissertation Abstr. 29(7), 1969.] *WR 136: 35*
The devastation of the winter habitat by forest fires has been suggested as a possible cause of the caribou decline.

Seitz, Alfred. BEITRAG ZUR HALTUNG DES HAUSRENTIERES *(RANGIFER TARANDUS* L.*)*. [CONTRIBUTION TO THE MAINTENANCE OF THE REINDEER *(RANGIFER TARANDUS).*] *Zool. Garten* 33(1/3): 55-64, illus. 1966. [From Biol. Abstr. 50(13), 1969. In German.] *WR 136: 35*
[Tiergarten, Nürnberg, Germany.]

Skrobov, V. D. THE PRESENT DISTRIBUTION AND POPULATION OF WILD REINDEER IN NORTHWESTERN SIBERIA. *Problems of the North* (11): 149-153, 1 fig. June 1968. *WR 136: 35*
Transl. of Problemy Severa (11): 124-127. 1967. [See Belkov, *WR 136: 8*, as to availability of this translation from the Russian.]

Smith, Arthur D., and Dean D. Doell. GUIDES TO ALLOCATING FORAGE BETWEEN CATTLE AND BIG GAME ON BIG GAME WINTER RANGE. *Utah State Div. Fish & Game Publ.* no. 68-11. 32 p., 10 figs. 1968. *WR 136: 35*
[Utah State Univ., Logan.] Mixed browse-herbaceous ranges used by big game animals in winter should be grazed by cattle only prior to July 1 in northern Utah if use of bitterbush is to be held to a minimum.--From summ.

Stubbe, Christoph. KÖRPERWACHSTUM UND KÖRPERGRÖSSE DES EUROPÄISCHEN REHWILDES *(CAPREOLUS C. CAPREOLUS* L.). [BODY GROWTH AND BODY SIZE OF THE EUROPEAN DEER *CAPREOLUS C. CAPREOLUS.*] *Zool. Garten* 33(1/3): 85-105, illus. 1966. [From Biol. Abstr. 50(2), 1969. In German.] *WR 136: 36*

Uloth, Walter. WASSERPFLANZEN ALS JAHRESZEITLICH BEDINGTE NAHRUNG DES ROTHIRSCHES, *CERVUS ELAPHUS* (LINNE, 1758). [WATER PLANTS AS ANNUAL-DEPENDENT NOURISHMENT OF *CERVUS ELAPHUS* (LINNE, 1758).] *Säugetierk. Mitteil.* 16(2): 183. 1968. [From Biol. Abstr. 50(15), 1969. In German.] *WR 136: 36*
[Friedensstrasse 14, Selingethal, Germany.]

Walther, Fritz R. FLIGHT BEHAVIOUR AND AVOIDANCE OF PREDATORS IN THOMSON'S GAZELLE *(GAZELLA THOMSONI* GUENTHER 1884). *Behaviour* 34(3): 184-221, 9 figs. 1969. In English with German summ. *WR 136: 36*
[Univ. Mo., Columbia.] Alert posture, flight in galloping and stotting, and especially the relatively soft alarm call are more or less contagious and can release alertness or flight in conspecifics. In perception of enemies the tommy reacts to optical stimuli from silhouettes and movements. The senses of smell and hearing are not so important in this context. If the tommies have recognized an enemy in time they try to keep it under control (behavior of fascination). The territorial males are especially important in this context. In rare cases even adult gazelles try to evade predators by lying down.--From summ.

Waring, George H. THE BLOW SOUND OF PRONGHORNS *(ANTILOCAPRA AMERICANA). J. Mammal.* 50(3): 647-648, 1 fig. Aug. 1969. *WR 136: 36*
[Southern Ill. Univ., Carbondale.]

Young, E. MANAGEMENT OF ADULT WILD AFRICAN UNGULATES. *African Wildl.* 22 (3): 216-230, illus. 1968. [From Biol. Abstr. 50(15), 1969.] *WR 136: 36*
[Kruger Natl. Park, South Africa.] Special methods of handling captive ungulates, feeding techniques, and disease control measures are given.

DEER (Odocoileus)

Anderson, Allen E., and Dean E. Medin. ANTLER MORPHOMETRY IN A COLORADO MULE DEER POPULATION. *J. Wildl. Mgmt.* 33(3): 520-533, 3 figs. July 1969. *WR 136: 36*
[Colo. Div. Game, Fish & Parks, Fort Collins.] Abstract: Symmetry was demonstrated between left and right antler beam diameters, lengths, and number of points in over 1,200 Cache la Poudre mule deer *(Odocoileus hemionus)* segregated into two age-classes. Decreasing annual precipitation, soil moisture, and three- to five-fold decreases in mean yields of two major winter range browse species over a 4-year period did not appear to affect antler development. Simple correlation coefficients *(r)* of antler beam weight *(Y)* versus antler beam measurements *(X)* of 25 yearling deer were: diameter, 0.62; length, 0.82; and number of points, 0.49. Similar values for 30 deer about 27 months and older were: diameter, 0.82; length, 0.74; and number of points, 0.52. Multiple correlation coefficients derived from antler weight versus these variables were: 0.87 (yearlings) and 0.82 (adults). Antler weight was linearly related to estimated age (0.94), and nonlinearly to eviscerated carcass weight (0.85) in 23 mule deer ranging in age from about 15-77 months. The limitations and possible management applications of these data are described.

Barick, Frank B. DEER PREDATION IN NORTH CAROLINA AND OTHER SOUTHEASTERN STATES / CONCLUSION. *Wildl. N.C.* 33(8): 4-6, illus. Aug. 1969. *WR 136: 36*
[Wildl. Resources Comm., Raleigh, N.C.] Hunting by man accounts for 85% of the annual drain, but only 63% is legal harvest. Predators account for an average of 8.5%, with free-running dogs accounting for 6%, and bobcats 2%. Car kills amount to 5%.

Book, Steven Arnold. FALLOUT CESIUM-137 ACCUMULATION IN TWO SUBPOPULATIONS OF BLACK-TAILED DEER *(ODOCOILEUS HEMIONUS COLUMBIANUS)*. *M.A. thesis, Univ. Calif.* vi + 61 p., 10 figs. [1969.] *WR 136: 37*

The data do not show any statistically significant seasonal variation in ^{137}Cs concentrations in rumen contents and muscle, although samples collected in winter (February-March) contained more ^{137}Cs. Rumen contents contained greater concentrations of ^{137}Cs than did muscle. Rumen contents and muscle of deer from oak woodland contained significantly higher concentrations of ^{137}Cs than samples from deer of the chaparral ($P<.01$). Differences in ^{137}Cs concentration reflect differences in diet. Ingested lichens appear to contribute appreciably to the ^{137}Cs body burden of oak woodland deer.--From summ.

Connolly, Guy E., M. L. Dudziński, and William M. Longhurst. AN IMPROVED AGE-LENS WEIGHT REGRESSION FOR BLACK-TAILED DEER AND MULE DEER. *J. Wildl. Mgmt.* 33 (3): 701-704. July 1969. *WR 136: 37*

[Hopland Field Sta., Hopland, Calif.] Abstract: Previously published eye lens weight-age data from known-age Columbian black-tailed deer *(Odocoileus hemionus columbianus)* and Rocky Mountain mule deer *(O. h. hemionus)* were subjected to regression analysis following computer iteration which fitted the linear relationship $100/[\text{AGE (months)} + k] = a + b \log_{10} \text{LENS (milligrams)}$. Mule deer have a significantly higher lens weight than black-tailed deer of a given age although the rate of lens growth with age does not differ between the two subspecies. Sex differences were not apparent. Although deer over 2 years old cannot be aged to the nearest year from their lens weights with 95% confidence, the method may provide better age estimates for deer under 1 year of age than can be obtained by other techniques. Attempts to age deer collected at Hopland, California, by examination of cementum annuli in incisors gave poor results.

Crouch, Glenn L. SPRING-SEASON DEER BROWSING OF DOUGLAS-FIR ON THE CAPITOL FOREST IN WESTERN WASHINGTON. *U.S. Forest Serv. Res. Note PNW* 84: 1-8, illus. 1968. [From Biol. Abstr. 50(5), 1969.] *WR 136: 37*

Dommert, A. R., M. E. Tumbleson, R. B. Wescott, D. A. Murphy, and L. J. Korschgen. HEMATOLOGIC VALUES FOR DIELDRIN-TREATED WHITE-TAILED DEER *(ODOCOILEUS VIRGINIANUS)* IN MISSOURI. *Am. J. Vet. Clin. Pathol.* 2: 181-184. 1968. *WR 136: 37*

[Univ. Mo., Columbia.] Summary: Hemograms were determined for 46 white-tailed deer, 1 to 3 years of age, fed diets containing 0, 5 or 25 ppm of dieldrin. No significant differences were found in the hemograms as a result of feeding various levels of dieldrin. Increased age resulted in significant changes in white blood cell counts, packed cell volumes and hemoglobin concentrations. A significant sex difference in mean red blood cell volumes of yearling deer was also observed.

Downing, Robert L., and Burd S. McGinnes. CAPTURING AND MARKING WHITE-TAILED DEER FAWNS. *J. Wildl. Mgmt.* 33(3): 711-714, 1 fig. July 1969. *WR 136: 37*

[Bur. Sport Fisheries & Wildl., Blacksburg, Va.] Abstract: In an enclosed herd of 200-450 white-tailed deer *(Odocoileus virginianus)* in Virginia, almost half the fawn population has been captured each year for 4 years (165 individuals) by searching from a vehicle and following three rules: (1) Concentrate on single does, (2) do not leave the vehicle until a fawn is sighted, and (3) make a noisy, fast approach so that the fawn will "drop." The techniques used for uniquely marking each animal with colored ear tags and streamers for visual identification are described.

Follmann, E. H., and W. D. Klimstra. FERTILITY IN MALE WHITE-TAILED DEER FAWNS. *J. Wildl. Mgmt.* 33(3): 708-711. July 1969. *WR 136: 37*

[Southern Ill. Univ., Carbondale.] Abstract: On the basis of the presence of spermatozoa in the cauda epididymides, 36.9% of 130 buck fawn white-tailed deer *(Odocoileus virginianus)* collected on Crab Orchard National Wildlife Refuge in January, 1966, were presumed fertile. This level of fertility seemed most clearly related to the age of the individual animal.

Fowle, Kenneth E. A RECORD OF MULTIPLE OVULATION IN MULE DEER. *Murrelet* 50 (1): 12. Jan.-Apr. 1969. *WR 136: 38*
An 8-10 year-old doe was carrying two viable male fetuses, along with seven masses, each with its own embryonic membrane and umbilical cord.

Harder, John D. A PHOTOELECTRIC CELL SYSTEM FOR RECORDING NOCTURNAL ACTIVITY OF MULE DEER. *J. Wildl. Mgmt.* 33(3): 704-708, 2 figs. July 1969. *WR 136: 38*
[Ohio Coop. Wildl. Res. Unit, Columbus.] Abstract: A system of photoelectric cells was used in the winter of 1967 to record the nocturnal movement of mule deer *(Odocoileus hemionus)* near Paonia, Colorado. Light beams focused on the photoelectric cells intersected four areas heavily used by deer passing between an orchard and natural habitat. Deer passing through these areas interrupted a light beam, and this event was recorded. The number of these interruptions per night correlated well ($r=0.80$, $P<0.01$) with the total number of deer tracks counted the following morning along a transect paralleling the photoelectric cell stations. The lights used on the photoelectric cells had no detectable effect on deer behavior, and the photoelectric cell system provided a reliable index of deer activity. Forty-nine percent of the light-beam interruptions occurred during the first 4 hours of nightly recording.

Harlow, Richard F., and Robert L. Downing. THE EFFECTS OF SIZE AND INTENSITY OF CUT ON PRODUCTION AND UTILIZATION OF SOME DEER FOODS IN THE SOUTHERN APPALACHIANS. *Trans. NE Sect. Wildl. Soc., 26th NE Fish & Wildl. Conf. 9-12 Feb. 1969.* p. 45-55, 2 figs. 1969. *WR 136: 38*
[SE Forest Expt. Sta., Blacksburg, Va.] Abstr.: Analyses of preliminary data indicate the clearcuttings in the southern Appalachians can be too small or too large, with either extreme producing undesired results. A 21-acre clearcutting appears to be a desirable compromise between one acre and 50 acres. When clearcuttings are too small, good browse plants are quickly eliminated through severe browsing and overstory competition; when too large, clearcuttings quickly become dense and unattractive to deer. This is a strong argument for holding the size of clearcuttings to less than 50 acres. Because they remain accessible to deer, heavy selective cuttings appear to have an important advantage over clearcutting.

Richmond, Merle, Richard E. Pillmore, and C. Edward Knittle. A URINE-COLLECTION DEVICE FOR MALE MULE DEER. *J. Am. Vet. Med. Assoc.* 155(7): 1085-1089, 4 figs. Oct. 1969. *WR 136: 38*
[Denver Wildl. Res. Center, Denver, Colo.]

Sauer, Barry W., Harry A. Gorman, and Raymond J. Boyd. A NEW TECHNIQUE FOR RESTRAINING ANTLERLESS MULE DEER. *J. Am. Vet. Med. Assoc.* 155(7): 1080-1084, 9 figs. Oct. 1969. *WR 136: 38*
[Colo. State Univ., Fort Collins.] The construction and operation of a restraint complex consisting of catch pen, loading runway, loading box, and restraint chute are described.

Segelquist, Charles A., Fred D. Ward, and Robert G. Leonard. HABITAT-DEER RELATIONS IN TWO OZARK ENCLOSURES. *J. Wildl. Mgmt.* 33(3): 511-520, 1 fig. July 1969. *WR 136: 38*
[Southern Forest Expt. Sta., Nacogdoches, Texas.] Abstract: In a 600-acre enclosure in Arkansas, severe mortality of white-tailed deer *(Odocoileus virginianus)* occurred during the two winters out of five when mast yields were lowest. In a companion enclosure, where forage and mast were more plentiful, deer losses were lower and never exceeded production. In addition to nutritional deficiencies, a likely contributor to losses was respiratory failure, caused by extensive parasitic pulmonary damage and aggravated by the exertion of dog chases.

Silver, Helenette, N. F. Colovos, J. B. Holter, and H. H. Hayes. FASTING METABOLISM OF WHITE-TAILED DEER. *J. Wildl. Mgmt.* 33(3): 490-498, 3 figs. July 1969. *WR 136: 39*

[N.H. Fish & Game Dept., Concord.] Abstract: Heat production of fasting white-tailed deer *(Odocoileus virginianus)* was measured over all months of the year. The deer were maintained in outdoor enclosures, they voluntarily restricted their feed intake and activity in winter, and experienced weight changes typical of wild deer. FMR followed a cyclic pattern. Average FMR of adults in summer coat from May through August (52.2 kcal/kg/24 hrs) was 1.5 times as high as that of deer in winter coat from September through April (33.8 kcal/kg/24 hrs). Results confirm the previously reported finding of lower metabolism in winter, and are in general conformance with reported changes in weight of thyroid glands, and certain activities of deer in an area of similar latitude in New York State. Data of measurement apparently had a stronger influence on FMR than either body size or sex. Values obtained were variable, and high compared to the accepted interspecies mean of 70 kcal/kg $W^{0.75}$/24 hrs. Cyclic changes in metabolism in deer subject to normal weather conditions may represent a response to season and/or weather, and, in combination with other physiological and behavioral changes, form part of a complex adaptation for survival of deer living near the northern extremity of their range. Additional studies for determining total energy requirements are suggested.

Smith, Ronald H., T. J. McMichael, and Harley G. Shaw. DECLINE OF A DESERT DEER POPULATION. *Wildl. Digest* abstr. 3. 8 p., [6 figs.]. Mar. 1969. *WR 136: 39*

[Ariz. Game & Fish Dept., Phoenix.] Decline of the herd during the past eight years may be the result of any-deer hunting. Low production of fawns during the past eight years is a primary contributing factor.

Tumbleson, M. E., J. W. Ticer, A. R. Dommert, D. A. Murphy, and L. J. Korschgen. SERUM PROTEINS IN WHITE-TAILED DEER IN MISSOURI. *Am. J. Vet. Clin. Pathol.* 2: 127-131, 1 fig. 1968. *WR 136: 39*

[Univ. Mo., Columbia.] Summary: Sera from 46 white-tailed deer were analyzed for total protein, albumin, *alpha*-globulin, *beta*-globulin, *gamma*-globulin and iron. Latent iron binding capacity and triiodothyronine resin sponge uptake were also measured and the total iron binding capacity was calculated. Serum *gamma*-globulin concentrations were found to increase with age. Latent iron binding capacity and total serum iron binding capacity were significantly greater in 1-year-old males than in females of the same age. Thyroid activity was greater, as indicated by an increased triiodothyronine resin sponge uptake, in 1-year-old female than in 1-year-old male deer.

Tumbleson, M. E., M. G. Wood, A. R. Dommert, D. A. Murphy, and L. J. Korschgen. BIOCHEMIC STUDIES ON SERUM FROM WHITE-TAILED DEER IN MISSOURI. *Am. J. Vet. Clin. Pathol.* 2: 121-125. 1968. *WR 136: 39*

[Univ. Mo., Columbia.] Summary: Sera from 46 white-tailed deer were analyzed for cholesterol, calcium, chloride, total bilirubin, total protein, inorganic phosphorus, blood urea nitrogen, glucose, lactic dehydrogenase, alkaline phosphatase, glutamic-oxaloacetic transaminase, sodium, potassium and magnesium. The 1-year-old females had significantly more serum alkaline phosphatase activity than did the 3-year-old females. There was a decrease in serum calcium concentration and an increase in serum chloride concentration with increasing age.

Ullrey, D. E., W. G. Youatt, H. E. Johnson, L. D. Fay, B. L. Schoepke, and W. T. Magee. DIGESTIBLE ENERGY REQUIREMENTS FOR WINTER MAINTENANCE OF MICHIGAN WHITE-TAILED DOES. *J. Wildl. Mgmt.* 33(3): 482-490, 1 fig. July 1969. *WR 136: 39*

[Mich. State Univ., East Lansing.] Abstract: Twenty-four pregnant white-tailed does *(Odocoileus virginianus)* were assigned to 8 trios on the basis of age and weight. They were penned individually out-of-doors from January 18 to April 12, 1967, and were fed a pelleted diet with a gross energy density of 3.48 kcal/g and a crude protein percentage of 9.2. One member of each trio received

the diet ad libitum; the second and third members received 75 and 50% of this amount, respectively, for a period of 9 weeks. For a subsequent 3 weeks, feed was provided ad libitum to all deer. A linear regression of feed intake with average daily body weight gain or loss provided the basis for estimating maintenance energy requirements at mean weekly ambient temperatures ranging from -1.0 to -13.0 C. Although the estimated maintenance requirement declined with time on experiment, the average estimate for the entire 9 weeks was 160 kcal of apparently digested energy per kg $BW^{0.75}$ per day. During the recovery period of ad libitum feed intake, those deer which had previously lost weight most rapidly tended to gain weight most rapidly. Effects of level of food consumption on rumen fluid composition and certain blood components were also determined.

Urness, Philip J. NUTRITIONAL ANALYSES AND IN VITRO DIGESTIBILITY OF MISTLETOES BROWSED BY DEER IN ARIZONA. *J. Wildl. Mgmt.* 33(3): 499-505, 7 figs. July 1969. *WR 136: 40*

[Forest Serv., USDA, Tempe, Ariz.] Abstract: Despite reports of deer *(Odocoileus* sp.) preference for mistletoes *(Phoradendron* sp., *Arceuthobium* sp.) and widespread occurrence of this plant group in the Southwest, utilization seldom parallels availability. Nutritional analyses reveal unusually high digestibilities and yearlong levels of some constituent nutrients. Crude protein is marginal and calcium:phosphorus ratios are undesirably high in some species. Mistletoes appear to serve as energy-rich concentrate feeds of particular value to deer during winter.

Zyznar, Edward, and Philip J. Urness. QUALITATIVE IDENTIFICATION OF FORAGE REMNANTS IN DEER FECES. *J. Wildl. Mgmt.* 33(3): 506-510, 3 figs. July 1969. *WR 136: 40*

[Ariz. State Univ., Tempe.] Abstract: Seventeen tree, shrub, and herbaceous plant species were individually fed to captive mule and white-tailed deer *(Odocoileus hemionus* and *O. virginianus).* Remnants in feces were identified for all species by magnification varying from 7X to 100X. At best, only low percentages of recognizable material were found despite a single species diet. Unstained epidermal mounts prepared from fresh plant material and photomicrographs required less time and proved superior to staining techniques for identification.

MAMMALS--MARINE

Bannister, J. L. AN AERIAL SURVEY FOR SPERM WHALES OFF THE COAST OF WESTERN AUSTRALIA 1963-1965. *Australian J. Marine Freshwater Res.* 19(1): 31-51, illus. 1968. [From Biol. Abstr. 50(9), 1969.] *WR 136: 40*

[Mus. Western Australia, Perth, Western Australia.]

Bannister, J. L., and A. de C. Baker. OBSERVATIONS ON FOOD AND FEEDING OF BALEEN WHALES AT DURBAN. *Norsk. Hvalfangst-Tidsskr.* 4: 78-82. 1967. [From J. Mammal. 50(3), 1969.] *WR 136: 40*

Bowring, L. D., and B. Stonehouse. BIRTH OF ELEPHANT SEAL *(MIROUNGA LEONINA)* IN NEW ZEALAND. *New Zealand J. Marine Freshwater Res.* 2(3): 574-575. Sept. 1968. [From J. Mammal. 50(3), 1969.] *WR 136: 40*

Bryden, M. M. LACTATION AND SUCKLING IN RELATION TO EARLY GROWTH OF THE SOUTHERN ELEPHANT SEAL, *MIROUNGA LEONINA* (L.). *Australian J. Zool.* 16(5): 739-748, illus. 1968. [From Biol. Abstr. 50(10), 1969.] *WR 136: 40*

[Cornell Univ., Ithaca, N.Y.]

Caldwell, David K., and Melba C. Caldwell. DOLPHINS, PORPOISES AND BEHAVIOR. *Underwater Nature* 4(2): 14-19, illus. 1967. [From Biol. Abstr. 50(3), 1969.] *WR 136: 40*

[Los Angeles County Mus. Nat. Hist., Los Angeles, Calif.]

de Monte, T., and G. Pilleri. INTRASPECIFIC VARIATIONS IN THE PLASMA PROTEIN FRACTIONS OF *DELPHINUS DELPHIS* LINNAEUS, 1758 (CETACEA, DELPHINIDAE) OF THE WESTERN MEDITERRANEAN.] *Säugetierk. Mitteil.* 16(2): 162-167, illus. 1968. [From Biol. Abstr. 50(16), 1969. In English with German summ.] *WR 136: 41*
[Lab. Med.-Biochem. Res., Trieste, Italy.]

Gaskin, D. E. DISTRIBUTION OF DELPHINIDAE (CETACEA) IN RELATION TO SEA SURFACE TEMPERATURES OFF EASTERN AND SOUTHERN NEW ZEALAND. *New Zealand J. Marine Freshwater Res.* 2(3): 527-534. Sept. 1968. [From J. Mammal. 50(3), 1969.] *WR 136: 41*

Gentry, Roger L. TERRITORIALITY AND REPRODUCTIVE BEHAVIOR IN MALE STELLER SEA LIONS. *Am. Zool.* 8(4): 739. Nov. 1968. [From J. Mammal. 50(3), 1969.] *WR 136: 41*
Abstract only.

Gunter, Gordon. THE STATUS OF SEALS IN THE GULF OF MEXICO WITH A RECORD OF FERAL OTARIID SEALS OFF THE UNITED STATES GULF COAST. *Gulf Res. Rept.* 2(3): 301-308, illus. 1968. [From Biol. Abstr. 50(11), 1969.] *WR 136: 41*
[Gulf Coast Res. Lab., Ocean Springs, Miss.]

Johnston, D. Gordon, and Sam H. Ridgway. PARASITISM IN SOME MARINE MAMMALS. *J. Am. Vet. Med. Assoc.* 155(7): 1064-1072, 10 figs. Oct. 1969. *WR 136: 41*
[St. John's Hospital, Oxnard, Calif.] Eleven cases in 6 spp. of marine mammals.

Kagei, Noboru, and others. [SURVEY OF *ANISAKIS* SPP. (ANISAKINAE, NEMATODA) ON MARINE MAMMALS IN THE COAST OF JAPAN.] *Japanese J. Parasitol.* 16(6): 427-435, illus. 1967. [From Biol. Abstr. 50(1), 1969. In Japanese with English summ.] *WR 136: 41*
[Inst. Public Health, Tokyo, Japan.]

Kooyman, G. L., and C. M. Drabek. OBSERVATIONS ON MILK, BLOOD, AND URINE CONSTITUENTS OF THE WEDDELL SEAL. *Physiol. Zool.* 41(2): 187-194, illus. 1968. [From Biol. Abstr. 50(7), 1969.] *WR 136: 41*
[Univ. Calif., La Jolla.] *"Leptonychotes weddelli."*

Krylov, V. I. THE TIMING OF SEXUAL MATURITY IN THE MALE PACIFIC WALRUS. *Problems of the North* (11): 225-233, 4 figs. June 1968. *WR 136: 41*
Transl. of Problemy Severa (11): 186-193. 1967. [See Belkov, *WR 136: 8*, as to availability of this translation from the Russian.]

Kuzin, A. E. [OCCURRENCE OF TWINS IN FUR SEALS *(CALLORHINUS URSINUS).*] *Zool. Zhur.* 48(2): 303-304. 1969. [From Biol. Abstr. 50(16), 1969. In Russian with English summ.] *WR 136: 41*
[Pac. Res. Inst. Piscicult. Oceanogr., Vladivostok, USSR.]

Lawrence, Barbara. ANATOMICAL INVESTIGATIONS OF WEDDELL SEALS *(LEPTONYCHOTES WEDDELLI). Antarctic J. U.S.* 2(5): 203. 1968. [From Biol. Abstr. 50(5), 1969.] *WR 136: 41*
[Mus. Comp. Zool., Harvard Univ., Cambridge, Mass.]

MacKintosh, N. A. ESTIMATES OF LOCAL SEAL POPULATIONS IN THE ANTARCTIC, 1930/37. *Norsk Hvalfangst-Tidsskr.* 3: 57-64. 1967. [From J. Mammal. 50(3), 1969.] *WR 136: 41*

Maluf, N. S. R. SOME ADAPTATIONS TO SUBMERGENCE IN WHALES. *Anat. Rec.* 163 (2): 224-225. Feb. 1969. [From J. Mammal. 50(3), 1969.] *WR 136: 41*
Abstract only.

Pervushin, A. S. [OBSERVATIONS ON DELIVERY OF SPERM-WHALES.] *Zool. Zhur.* 45 (12): 1892-1893. 1966. [From Biol. Abstr. 50(4), 1969. In Russian with English summ.] *WR 136: 42*
[Atlantic Res. Inst. Mar. Fish. Oceanogr., Kaliningrad, USSR.]

Pervushin, A. S. [OBSERVATIONS OF BEHAVIOR AND FEEDING OF WHALEBONE WHALES IN THE AREA OF THE CROZET ISLANDS.] *Okeanologiya* 8(1): 139-145. 1968. [From Biol. Abstr. 50(1), 1969. In Russian with English summ.] *WR 136: 42*

Peterson, Ernest A., W. Carlos Heaton, and Sydney D. Wruble. LEVELS OF AUDITORY RESPONSE IN FISSIPED CARNIVORES. *J. Mammal.* 50(3): 566-578, 4 figs. Aug. 1969. *WR 136: 42*
[Univ. Miami School Med., Miami, Fla.] Peripheral auditory responses were measured in at least one representative from each of the seven families of fissiped carnivores.--From abstr.

Pilleri, G., and J. Knuckey. THE DISTRIBUTION, NAVIGATION AND ORIENTATION BY THE SUN OF *DELPHINUS DELPHIS* L. IN THE WESTERN MEDITERRANEAN. *Experientia* 24 (4): 394-396, illus. 1968. [From Biol. Abstr. 50(4), 1969. In English with German summ.] *WR 136: 42*
[Brain Anat. Inst. Waldau, Bern, Switzerland.]

Pilleri, Giorgio, and Janet Knuckey. DAS VERHALTEN EINIGER DELPHINIDAE IM WESTLICHEN MITTELMEER. [THE BEHAVIOR OF SOME DELPHINIDAE IN THE WESTERN MEDITERRANEAN.] *Estratto Dagli Atti Mus. Civico Storia Nat.* (Trieste) 26(3): 31-76 + 28 pls. 1968. [From J. Mammal. 50(3), 1969. In German with Italian summ.] *WR 136: 42*

Popov, L. A. MODERN MARINE ANIMAL HUNTING INDUSTRY OF THE NORTH ATLANTIC SEAS. *Problems of the North* (11): 193-198. June 1968. *WR 136: 42*
Transl. of Problemy Severa (11): 160-165. 1967. [See Belkov, *WR 136: 8*, as to availability of this translation from the Russian.]

Potelov, V. A. [AGE-RELATED AND SEXUAL VARIATION OF CRANIOLOGICAL CHARACTERS IN *ERIGNATHUS BARBATUS*.] *Zool. Zhur.* 47(10): 1526-1532, illus. 1968. [From Biol. Abstr. 50(11), 1969. In Russian with English summ.] *WR 136: 42*

Ridgway, Sam H., and John G. Simpson. ANESTHESIA AND RESTRAINT FOR THE CALIFORNIA SEA LION, *ZALOPHUS CALIFORNIANUS*. *J. Am. Vet. Med. Assoc.* 155(7): 1059-1063, 10 figs. Oct. 1969. *WR 136: 42*
[Naval Undersea Res. & Development Center's Marine Biosci. Facility, Point Mugu, Calif.] Summary: A pinniped restraining cage was developed for examination, treatment, or induction of anesthesia. Inhalation anesthesia with halothane was found to be satisfactory because of rapid induction and recovery. Physiologic adaptations to life in the aquatic environment (especially in thermoregulation) appeared to limit the usefulness of barbiturates, phencycladine, and phenothiazine-derived tranquilizers.

Rose, C. D., and W. W. Hassler. OCCURRENCE OF THE POMPANO DOLPHIN, *CORYPHAENA EQUISELIS* (LINNAEUS), IN NORTH CAROLINA WATERS. *J. Elisha Mitchell Sci. Soc.* 84 (2): 350. 1968. [From Biol. Abstr. 50(6), 1969.] *WR 136: 42*
[Nicholls State Coll., Thibodaux, La.]

Schiefer, B. DIE ROBBENJAGD 1968 IM GOLF VON ST. LORENZ. [THE 1968 SEAL HUNT IN THE GULF OF ST. LAWRENCE.] *Berlin München. Tierärztl. Wochenschr.* 81(13): 261-264, illus. 1968. [From Biol. Abstr. 50(4), 1969. In German with English summ.] *WR 136: 42*
[Inst. Tierpathol., Univ. Munich, Munich, Germany.]

MAMMALS--MARINE--Continued

Shustov, A. P. RATIONAL UTILIZATION OF THE POPULATIONS OF PINNIPEDIA IN THE BERING SEA. *Problems of the North* (11): 219-223. June 1968. *WR 136: 43*
Transl. of Problemy Severa (11): 182-185. 1967. [See Belkov, *WR 136: 8*, as to availability of this translation from the Russian.]

Siniff, Donald B., and David R. Cline. POPULATION DYNAMICS OF ANTARCTIC SEALS (IWSOE (ICE BREAKER-SUPPORTED OCEANOGRAPHIC AND BIOLOGIC EXPEDITION)--1968). *Antarctic J. U.S.* 3(4): 86-87. 1968. [From Biol. Abstr. 50(5), 1969.] *WR 136: 43*
[Mus. Nat. Hist., Univ. Minn., Minneapolis.]

Stirling, Ian. DIURNAL MOVEMENTS OF THE NEW ZEALAND FUR SEAL AT KAIKOURA. *New Zealand J. Marine Freshwater Res.* 2(2): 375-377, illus. 1968. [From Biol. Abstr. 50(6), 1969.] *WR 136: 43*
[Mawson Inst. Antarctic Res., Univ. Adelaide, Adelaide, Australia.]

Stirling, Ian. TOOTH WEAR AS A MORTALITY FACTOR IN THE WEDDELL SEAL, *LEPTONYCHOTES WEDDELLI*. *J. Mammal.* 50(3): 559-565, 5 figs. Aug. 1969. *WR 136: 43*
[Mawson Inst. Antarctic Res., Univ. Adelaide, Adelaide, Australia.] Abstract: A simple method for etching and staining macrosections of Weddell seal *(Leptonychotes weddelli)* canine teeth for aging by counting dentinal annuli is described. Weddell seals abrade sea ice with their teeth to maintain breathing holes during winter. This results in the tooth wearing away to the pulp cavity and subsequent infection and abscessing. An arbitrary scale was devised to measure dental wear and necrosis on 171 Weddell seal skulls for which age had been determined. An index of tooth wear and necrosis showed little change up to the average age of 8 to 9 years, followed by a marked increase in subsequent years indicating a correlation between tooth condition and mortality of adults.

Tarasevich, M. N. [DEPENDENCE OF DISTRIBUTION OF THE SPERM WHALE MALES UPON THE CHARACTER OF FEEDING.] *Zool. Zhur.* 47(11): 1683-1688. Nov. 1968. [From J. Mammal. 50(3), 1969. In Russian with English summ.] *WR 136: 43*

Tarasevich, M. N. [FOOD CONNECTIONS OF SPERM WHALES IN THE NORTHERN PACIFIC.] *Zool. Zhur.* 47(4): 595-601, illus. 1968. [From Biol. Abstr. 50(9), 1969. In Russian with English summ.] *WR 136: 43*
[All-Union Res. Inst. Mar. Piscicult. Oceanogr., Moscow, USSR.]

Wakefield, N. A. WHALES AND DOLPHINS RECORDED FOR VICTORIA. *Victorian Nat.* 84(9): 273-281, illus. 1967. [From Biol. Abstr. 50(5), 1969.] *WR 136: 43*
[Monash Teachers Coll., Clayton, Australia.] Annotated list of 16 spp.

Yablokov, A. V., and V. M. Bel'kovich. CETACEANS OF THE ARCTIC, PROSPECTS OF THEIR PROPER UTILIZATION AND CONSERVATION. *Problems of the North* (11): 199-218, 3 figs. June 1968. *WR 136: 43*
[A. N. Severtsov Inst. Animal Morphol., Acad. Sci. USSR.] Includes a key to the whales of the Arctic. Transl. of Problemy Severa (11): 166-181. 1967. [See Belkov, *WR 136: 8*, as to availability of this translation from the Russian.]

MAMMALS--OTHER GROUPS

Albignac, Roland. NOTES ETHOLOGIQUES SUR QUELQUES CARNIVORES MALGACHES: LE *GALIDIA ELEGANS* I. GEOFFROY. [ECOLOGICAL NOTES ON SOME CARNIVORES OF MADAGASCAR: *GALIDIA ELEGANS* I. GEOFFROY.] *Terre & Vie* 1969(2): 202-215, 8 figs. Apr.-June 1969. In French with English summ. *WR 136: 43*
Three populations of ring-tailed mongooses inhabit the island of Madagascar. Captive animals were observed during breeding activity and raising of young.

Altmann, Dagmar. BEMERKUNGEN ÜBER EIN WOLLOPOSSUM, *CALUROMYS LANIGER* (DESMAREST). [REMARKS ON *CALUROMYS LANIGER* (DESMAREST).] *Zool. Garten* 35(1/2): 22-29, illus. 1968. [From Biol. Abstr. 50(6), 1969. In German.] *WR 136: 44*
Captive marsupial rat.

Batcheler, C. L. ESTIMATION OF OPOSSUM POPULATIONS FROM TRAPLINE DATA. *1967 Rept. Forest Res. Inst.* (Rotorua). p. 63. 1968. [From J. Mammal. 50(3), 1969.] *WR 136: 44*
Abstract only.

Cowan, Daniel F., William M. Thurlbeck, and R. M. Laws. SOME DISEASES OF THE HIPPOPOTAMUS IN UGANDA. *Pathol. Vet.* 4(6): 553-567, illus. 1967. [From Biol. Abstr. 50(2), 1969.] *WR 136: 44*
[Zool. Soc., Philadelphia, Pa.]

Kinloch, Bruce. THE ELEPHANTS OF KNYSNA (CAPE PROVINCE). *African Wildl.* 22 (3): 185-190, illus. 1968. [From Biol. Abstr. 50(15), 1969.] *WR 136: 44*
At least 10 elephants *(Loxodonta africana africana)* are still present in the Knysna forest, and may be the remainder of a distinct subspecies.

Klingel, Hans. DIE IMMOBILISATION VON STEPPENZEBRAS *(EQUUS QUAGGA BOEHMI).* [IMMOBILIZATION OF PLAIN ZEBRAS *(EQUUS QUAGGA BOEHMI).* *Zool. Garten* 35(1/2): 54-66, illus. 1968. [From Biol. Abstr. 50(11), 1969. In German with English summ.] *WR 136: 44*
[Naturhist. Mus., Brunswick, Germany.]

Lang, E. M. EINIGE BIOLOGISCHE DATEN VOM PANZERNASHORN *(RHINOCEROS UNICORNIS).* [BIOLOGICAL DATA ON *RHINOCEROS UNICORNIS.*] *Rev. Suisse Zool.* 74(3): 603-607. 1967. [From Biol. Abstr. 50(2), 1969. In German with French and English summ.] *WR 136: 44*
[Zool. Garten, Basel, Switzerland.]

McManus, John J. TEMPERATURE REGULATION IN THE OPOSSUM, *DIDELPHIS MARSUPIALIS VIRGINIANA.* *J. Mammal.* 50(3): 550-558, 2 figs. Aug. 1969. *WR 136: 44*
[Fairleigh Dickinson Univ., Madison, N.J.]

Michener, Gail R. NOTES ON THE BREEDING AND YOUNG OF THE CREST-TAILED MARSUPIAL MOUSE, *DASYCERCUS CRISTICAUDA.* *J. Mammal.* 50(3): 633-635, 1 fig. Aug. 1969. *WR 136: 44*
[Univ. Saskatchewan, Regina, Canada.]

Pohl, Adolf. BEITRÄGE ZUR ETHOLOGIE UND BIOLOGIE DES SONNENDACHSES *(HELICTIS PERSONATA* GRAY 1831*)* IN GEFANGENSCHAFT. [CONTRIBUTIONS TO THE ETIOLOGY AND BIOLOGY OF THE TREE BADGER *(HELICTIS PERSONATA* GRAY 1831*)* IN CAPTIVITY.] *Zool. Garten* 33(5): 225-247, illus. 1967. [From Biol. Abstr. 50(5), 1969. In German.] *WR 136: 44*

Roth, Harald H., and Graham Child. [DISTRIBUTION AND POPULATION STRUCTURE OF BLACK RHINOCEROS *(DICEROS BICORNIS* L.*)* IN THE LAKE KARIBA BASIN (RHODESIA).] *Z. Säugetierk.* 33(4): 214-226, illus. 1968. [From Biol. Abstr. 50(11), 1969. With English summ.] *WR 136: 44*
[Wildl. Officer, Food Agr. Organization, Rome, Italy.]

Sapozhnikov, G. N., and A. K. Kovalev. [DISTRIBUTION AND ECOLOGY OF HYSTRICIDAE *(HYSTRIS LEUCURA SATUNINI* MÜLLER, 1911*)* FOUND IN TADZHIKISTAN.] *Izvest. Akad. Nauk Tadzh. SSR Otd. Biol. Nauk* 1: 59-64, illus. 1967. [From Biol. Abstr. 50(3), 1969. In Russian.] *WR 136: 44*
[E. N. Pavlovskii Inst. Zool. Parasitol., Acad. Sci. Tadzh. SSR, Dushanbe, USSR.]

Silveira, Estanislau Kostka Pinto da. NOTAS SÔBRE A HISTÓRIA NATURAL DO TAMANDUÁ-MIRIM *(TAMANDUA TETRADACTYLA CHIRIQUENSIS* J. A. ALLEN 1904, MYRMECOPHAGIDAE), COM REFERÊNCIAS À FAUNA DO ISTMO DE PANAMÁ. [NOTES ON THE NATURAL HISTORY OF THE LESSER ANTEATER *(TAMANDUA TETRADACTYLA CHIRIQUENSIS* J. A. ALLEN 1904, MYRMECOPHAGIDAE) WITH REFERENCES TO THE FAUNA OF THE ISTHMUS OF PANAMA.] *Vellozia* no. 6. p. 9-31, [13] figs. Dec. 1968. In Portuguese with English summ. *WR 136: 45*
[Centro Conserv. Nat., Rio de Janeiro, Brazil.]

Tomich, P. Quentin. MOVEMENT PATTERNS OF THE MONGOOSE IN HAWAII. *J. Wildl. Mgmt.* 33(3): 576-584, 4 figs. July 1969. *WR 136: 45*
[Plague Res. Unit, State Dept. Health, Honokaa, Hawaii.] Abstract: A 3-year study based on 546 small Indian mongooses *(Herpestes auropunctatus)*, marked and released in a 30-square mile coastal belt, confirms earlier fragmentary knowledge that this species is highly sedentary. Average moves between successive captures are about 0.25 mile for males and about 0.10 mile for females. Range lengths of males increased with time but seldom exceeded 1.0 mile; those of females seldom exceeded 0.4 mile. Moves as long as 2-5 miles are only rarely detected. These patterns of movement, notably restricted even for a small carnivore, appear to be correlated with an abundance of adequate shelter and a highly omnivorous diet, and suggest a complex social structure that permits extensive overlap of individual ranges.

Van Deusen, Hobart M. FEEDING HABITS OF *PLANIGALE* (MARSUPIALIA, DASYURIDAE). *J. Mammal.* 50(3): 616-618. Aug. 1969. *WR 136: 45*
[Am. Mus. Nat. Hist., New York, N.Y.]

VanDruff, Larry W. MOVEMENTS OF OPOSSUMS IN MARSH AND WETLAND HABITATS. *Trans. NE Sect. Wildl. Soc., 26th NE Fish & Wildl. Conf. 9-12 Feb. 1969.* p. 81-89. 1969. *WR 136: 45*
[N.Y. Coop. Wildl. Res. Unit, Ithaca.] Abstract: The movement patterns and the distances traveled by tagged juvenile and adult opossums *(Didelphis marsupialis)* on a wildlife refuge in New York State are presented. Forty-eight percent of 278 ear-tagged animals were recaptured or recovered dead. Some individuals remained where first caught; others moved considerable distances. Juvenile males moved farther between recaptures than did young females. Adult males moved appreciably farther between recaptures than did adult females. Pouch young of 27 litters were toe-clipped and their dispersal after weaning was determined. Implications of these findings to opossum control on waterfowl production areas are discussed.

Wallach, J. D., and J. L. Anderson. ORIPAVINE (M. 99) COMBINATIONS AND SOLVENTS FOR IMMOBILIZATION OF THE AFRICAN ELEPHANT. *J. Am. Vet. Med. Assoc.* 153(7): 793-797. 1968. [From Biol. Abstr. 50(14), 1969.] *WR 136: 45*
[St. Louis Zool. Park, St. Louis, Mo.]

Watson, R. M., and R. H. V. Bell. THE DISTRIBUTION, ABUNDANCE AND STATUS OF ELEPHANT IN THE SERENGETI REGION OF NORTHERN TANZANIA. *J. Appl. Ecol.* 6(2): 115-132, 10 figs. Aug. 1969. *WR 136: 45*
[P.O. Box 15068, Nairobi, Kenya.] Two populations of elephants exist in the Serengeti region of northern Tanzania. The southern population of about 650 animals occupies a range of 3000 square miles (7770 km^2) with a density of 0.270/square mile (0.104/km^2). The northern population of above 1400 animals occupies a range of 1825 square miles (4726 km^2) with a density of 0.780/square mile (0.301/km^2). Both populations have remained stable since 1962.--From summ.

Zumpt, I. F. THE FEEDING HABITS OF THE YELLOW MONGOOSE, *CYNICTUS PENICILLATA*, THE SURICATE, *SURICATA SURICATTA* AND THE CAPE GROUND SQUIRREL, *XERUS INAURIS*: I. ANALYSIS OF STOMACH CONTENTS: II. OBSERVATIONS ON FREE-LIVING AND CAPTIVE ANIMALS (RABIES VECTOR). *J. South African Vet. Med. Assoc.* 39(4): 89-91. 1968. [From Biol. Abstr. 50(15), 1969.] *WR 136: 45*
[Vet. Invest. Cent., Mafeking, South Africa.]

BIRDS--GENERAL

Ash, J. S., editor. THE GAME RESEARCH ASSOCIATION / ANNUAL REPORT FOR 1968. *Game Res. Assoc.* (England). xxv + 53 p., [6] figs. 1969. *WR 136: 46*
Includes the following reports: Partridge survival project; The farmland habitat survey; The pheasant study; The use of formic acid as a prophylactic for moniliasis; Survey of game bird diseases, 1968; National game [bird] census, 1967/68; and Pheasant and partridge wing-tagging results in the 1967/68 season.

Ellenberg, H., and F. Klötzli. VEGETATION UND BEWIRTSCHAFTUNG DES VOGEL-RESERVATES. [VEGETATION AND MANAGEMENT OF THE BIRD SANCTUARY (NEERACHER RIET) (NORTHERN SWITZERLAND).] *Ber. Geobot. Inst. Eidg. Tech. Hochsch. Stift. Rübel* 37: 88-103, illus. 1967. [From Biol. Abstr. 50(2), 1969. In German with English summ.] *WR 136: 46*
[Bot. Inst., Karspüle, Göttingen, Germany.]

Michaelsen, Ulf. FUGLEOBSERVASJONER FRA TONSBERGDISTRIKTET 1965/66. [BIRD OBSERVATIONS FROM THE DISTRICT OF TONSBERG, COUNTY, VESTFOLD (NORWAY) 1965/66.] *Fauna* (Oslo) 19(4): 219-220. 1966. [From Biol. Abstr. 50(2), 1969. In Norwegian.] *WR 136: 46*

Obchinnikova, N. P. [USING SETTLED MOTOR AND VOCAL REACTIONS BY BIRDS.] *Vestn. Leningrad. Univ. Ser. Biol.* 23(3): 154-156. 1968. [From Biol. Abstr. 50 (6), 1969. In Russian with English summ.] *WR 136: 46*

Rokitansky, Gerth, and Herbert Schifter. ÜBER EINIGE HYBRIDEN DER VOGEL-SAMMLUNG DES WIENER NATURHISTORISCHEN MUSEUMS. [ABOUT SOME HYBRIDS IN THE BIRD COLLECTION OF THE VIENNA NATURAL HISTORY MUSEUM.] *Ann. Naturhist. Mus. Wien* 72: 213-230 + 3 pls. Nov. 1968. In German. *WR 136: 46*
From Ardeidae, Anatidae, Psittacidae, and Estrildidae.

Rucner, Renata, editor. LARUS / ANNUAL OF THE DEPARTMENT OF ORNITHOLOGY, INSTITUTE OF BIOLOGY, ZAGREB UNIVERSITY / XIX / 1965. *Translated and published for the Smithsonian Institution and the National Science Foundation, Washington, D.C., by the NOLIT Publishing House* (Belgrade, Yugoslavia). TT 68-50064. 220 p. 1969. Serbo-Croatian original from Larus 19, 1965. [Translation available from U.S. Dept. Commerce, Clearinghouse for Federal Scientific and Technical Information, Springfield, Va.] *WR 136: 46*
Includes: Bird banding in 1963 and 1964; Qualitative and quantitative avifaunal stand surveys of some forest communities in West Croatia; On the ecological significance of the ornithofauna of the area of Klanjec (Hrvatsko Zagorje); Recent data of the collared turtle dove, *Streptopelia decaocto decaocto* (Friv.); Four years of banding herring gulls *(Larus argentatus* Pontopp.) on the islets of Mrkan and Bobara; Daily rhythm of bird movements recorded during the fall; Faunistic notes from the shores of the Black Sea in Bulgaria; and several short notes.

BIRDS--TECHNIQUES

DeHaven, Richard W. TELESCOPING MIST-NET POLES. *Inland Bird Banding News* 41 (3): 84-85, 1 fig. May-June 1969. *WR 136: 46*
[Wildl. Res. Center, Denver, Colo.] Courtesy/ Paul A. Stewart.

Franke, Hartmut. AUSWIRKUNG DES ANBRINGENS KÜNSTLICHER SCHWALBENNESTER AUF DEN BESTAND DER MEHLSCHWALBE *(DELICHON URBICA)* UND RAUCHSCHWALBE *(HIRUNDO RUSTICA)*. [THE EFFECTS OF ERECTING NESTING HOUSES UPON THE POPULATION OF HOUSE MARTINS *(DELICHON URBICA)* AND BARN SWALLOWS *(HIRUNDO RUSTICA).*] *Ornithol. Mitteil.* 21(3): 61-62, 1 fig. Mar. 1969. In German. *WR 136: 46*
During 1958-1965.

Gavrilov, E. I. [ON THE USE OF SALT LICKS FOR TRAPPING BIRDS.] *Ornitologiya* 9: 343-344. 1968. [From Bird-Banding 40(2), 1969. In Russian.] *WR 136: 46*
"Carpodacus erythrinus."

Hanson, S. A., I. Lennerstedt, H. Myhrberg, and E. Nyholm. HOLKSTUDIER VID AMMARNÄS 1965. [NESTBOX STUDIES IN AMMARNÄS IN 1965.] *Fauna & Flora* 6: 225-254, illus. 1966. [From Biol. Abstr. 50(2), 1969. In Swedish.] *WR 136: 47*

Haukioja, Erkki. RELIABILITY OF THE LINE SURVEY METHOD IN BIRD CENSUS, WITH REFERENCE TO REED BUNTING AND SEDGE WARBLER *(EMBERIZA SCHOENICLUS, ACROCEPHALUS SCHOENOBAENUS)*. *Ornis Fenn.* 45(4): 105-113. 1968. [From Biol. Abstr. 50(16), 1969. In English with Finnish summ.] *WR 136: 47*
[Turku Univ., Turku, Finland.]

Henry, J. E., and T. M. Stockdale. AUTOMATIC ON-OFF SYSTEM FOR BIRD CONTROL EXPLODERS. *Ohio Rept. Res. & Development* 54(3): 35-36, 4 figs. May-June 1969. *WR 136: 47*
Notes on the construction of an "automatic valve control device [that] is relatively inexpensive, dependable, and will work with present exploders that use calcium carbide acetylene generators, compressed acetylene gas, or bottled LP-gas."

Kibler, Lewis F. THE ESTABLISHMENT AND MAINTENANCE OF A BLUEBIRD NEST-BOX PROJECT / A REVIEW AND COMMENTARY. *Bird-Banding* 40(2): 114-129. Apr. 1969. *WR 136: 47*
[21 Porter Ave., Jamestown, N.Y.] Various factors that enter into the nesting cycle such as competitors, predators, parasites and the weather are discussed. Experience and suggestions for the maintenance of the nest-boxes, trapping and banding are included.--From summ. Courtesy/ Paul A. Stewart.

Lloyd, Albert C., and Mary Heimerdinger Clench. A DEVICE FOR FORMING HUMMINGBIRD BANDS. *Bird-Banding* 40(1): 45-46, 1 fig. Jan. 1969. *WR 136: 47*
[Carnegie Mus., Pittsburgh, Pa.] Courtesy/ Paul A. Stewart.

Nettleship, David N. TRAPPING COMMON PUFFIN FLEDGLINGS. *Bird-Banding* 40(2): 139-144, 4 figs. Apr. 1969. *WR 136: 47*
[McGill Univ., Montreal, Canada.] A drift fence was used to funnel the birds into a cage as they walked down the hill towards the sea.--Courtesy/ Paul A. Stewart.

Nyholm, Erik, and O. Ginstrup. A BALANCE FOR WEIGHING EGGS OF SMALLER BIRDS IN THE FIELD. *Oikos* 19(1): 149-151, illus. 1968. [From Biol. Abstr. 50(10), 1969.] *WR 136: 47*
[Zool. Inst., Univ. Lund, Lund, Sweden.] A balance is described, based upon the electromagnetic weighing principle. The working range is greater than 3 g and the balance is accurate to within 0.01 g. It is rugged, light weight, and able to function accurately over a wide range of temperatures and humidity.

Pomarnacki, Leopold. NOWE TYPY SKRZYNEK LEGOWYCH DLA PTAKOW. [NEW TYPES OF BIRD NEST-BOXES.] *Przegl. Zool.* 12(1): 70-73, illus. 1968. [From Biol. Abstr. 50(13), 1969. In Polish with English summ.] *WR 136: 47*
[Ul. Kelles Krauza, Radom, Poland.]

Rietz, Jan. FOTOGRAFERING MED RADIOSTYRD KAMERA. [PHOTOGRAPHING WITH RADIO-OPERATED CAMERA.] *Vår Fågelvärld* 27: 244-248. [1968.] [From Bird-Banding 40 (1), 1969. In Swedish.] *WR 136: 47*

Spellerberg, Ian F. CAPTURING AND IMMOBILIZING McCORMICK SKUAS. *J. Am. Vet. Med. Assoc.* 155(7): 1040-1043, 1 fig. Oct. 1969. *WR 136: 47*
[La Trobe Univ., Bundoora, Victoria, Australia.] Summary: McCormick skuas were captured by use of a wire cage with a swing door, baited with meat. Once caught, the birds were immobilized to allow detailed external examination, banding, and taking of blood samples. Pentobarbital sodium administered orally was found to be a convenient and practical narcotizing agent where there was one operator handling several birds an hour. The long recovery period of up to

3 hours was overcome in some instances by having suitable containers to confine birds until fully recovered, or if necessary, administering tepid water to cause regurgitation. Thiopental sodium administered intravenously was more efficient than pentobarbital sodium, but required two operators; one to hold the bird and one to administer the drug. It was concluded that the choice of the drug depended on the number of birds being handled and the number of operators available.

Staude, J. Hannes. BISHERIGE ERGEBNISSE EINES VERSUCHES ZUR STEIGERUNG DER SIEDLUNGSDICHTE HOEHLENBRUSTENDER VOGELARTEN IN REINEN FICHTENWAELDERN IM GEBIET DER FUCHSKAUTE/WESTERW. [HITHERTO ACHIEVED RESULTS OF AN EXPERIMENT TO RAISE THE NESTING DENSITY OF BIRDS BREEDING IN CAVITIES IN SPRUCE FORESTS IN THE FUCHSKAUTE/WESTERWALD AREA.] *Emberiza* 1(3): 79-92, illus. 1966. [From Biol. Abstr. 50(5), 1969. In German.] *WR 136: 48*

Thornsberry, William H. A COMPOUND LEVERAGE BANDING PLIERS. *Bird-Banding* 40 (2): 130-132, 1 fig. Apr. 1969. *WR 136: 48*
[P.O. Box 1672, Jamestown, N. Dak.] A modified pair of compound leverage pliers will close goose bands tightly without flattening the band.--Courtesy/ Paul A. Stewart.

Ward, P. R. B. RADIOAKTIVE MARKIERUNG AM VOGELNEST. [RADIOACTIVE LABELING OF BIRD NEST.] *Umsch. Wiss. Tech.* 68(7): 217. [From Biol. Abstr. 50(11), 1969. In German.] *WR 136: 48*
[Univ. Calif., Berkeley.]

BIRDS--MORPHOLOGY & PHYSIOLOGY

Britton, P. L., and R. J. Dowsett. MORE WEIGHTS OF THE CARMINE BEE-EATER. *Bull. British Ornithol. Club* 89(3): 85-86. June 1969. *WR 136: 48*
Mean and average weights of 105 *Merops nubicus nubicoides*.

Brooke, R. K. AGE CHARACTERS IN SWIFTS. *Bull. British Ornithol. Club* 89(3): 78-81. June 1969. *WR 136: 48*

Child, George I. A STUDY OF NONFAT WEIGHTS IN MIGRATING SWAINSON'S THRUSHES *(HYLOCICHLA USTULATA)*. *Auk* 86(2): 327-338, 5 figs. Apr. 1969. *WR 136: 48*
[Univ. Ga., Athens.] A progressive decline of fat weights in birds collected at seven stations between Michigan and Panama roughly paralleled the migration sequence. Ratios of water to nonfat weights were remarkably similar at all localities.--From summ. Courtesy/ Paul A. Stewart.

Coulson, J. C., G. R. Potts, and Jean Horobin. VARIATION IN THE EGGS OF THE SHAG *(PHALACROCORAX ARISTOTELIS)*. *Auk* 86(2): 232-245, 2 figs. Apr. 1969. *WR 136: 48*
[Univ. Durham, Durham, England.] Egg size was found to increase progressively with the age of the laying female. Egg size was used to determine the age composition of a breeding colony.--Courtesy/ Paul A. Stewart.

Eisenmann, E. WING FORMULA AS A MEANS OF DISTINGUISHING SUMMER TANAGER, *PIRANGA RUBRA*, FROM HEPATIC TANAGER, *P. FLAVA*. *Bird-Banding* 40(2): 144-145. Apr. 1969. *WR 136: 48*
[Am. Mus. Nat. Hist., New York, N.Y.] Courtesy/ Paul A. Stewart.

Evans, P. R. WINTER FAT DEPOSITION AND OVERNIGHT SURVIVAL OF YELLOW BUNTINGS *(EMBERIZA CITRINELLA L.)*. *J. Animal Ecol.* 38(2): 415-423, 2 figs. June 1969. *WR 136: 48*
[Univ. Durham, Durham, England.] The mean fat reserve carried by the birds on a given date was correlated with the long-term average temperature to be expected at that date.--From summ.

Hendricks, Paul. A STUDY OF NESTLING BLUE JAYS. *Soiseortail* 19(2): 31-34, 4 figs. Summer 1969. *WR 136: 49*
[Bartlesville, Okla.] Weights of 12 nestlings, length of primaries, and observations on day of feather emergence.

Low, Richard J. A BLACK-CAPPED CHICKADEE VARIANT. *Auk* 86(2): 354-355, 1 fig. Apr. 1969. *WR 136: 49*
[Dartmouth Med. School, Hanover, N.H.] Instead of the usual "bib," several *Parus atricapillus* had a narrow black band on their throats and yellow mandibles.--Courtesy/ Paul A. Stewart.

Payne, Robert B. OVERLAP OF BREEDING AND MOLTING SCHEDULES IN A COLLECTION OF AFRICAN BIRDS. *Condor* 71(2): 140-145. Apr. 1969. *WR 136: 49*
[Univ. Okla., Norman.] The pattern of non-overlap of breeding and molting suggests that demands on energy involved in breeding and molting are the same in the tropics as in temperate regions.--Courtesy/ Paul A. Stewart.

Preston, F. W. SHAPES OF BIRDS' EGGS: EXTANT NORTH AMERICAN FAMILIES. *Auk* 86(2): 246-264, 6 figs. Apr. 1969. *WR 136: 49*
[Box 49, Meridian Sta., Butler, Pa.] Shape of birds' eggs cannot be designated with less than three parameters: elongation, asymmetry, and bicone. The distribution of any one of the parameters is not normal or Gaussian, suggesting that there must have been now-extinct families with intermediate properties.--From abstr. Courtesy/ Paul A. Stewart.

Rijke, A. M. THE WATER REPELLENCY AND FEATHER STRUCTURE OF CORMORANTS, PHALACROCORACIDAE. *Ostrich* 38(3): 163-165. 1967. [From Bird-Banding 40(1), 1969.] *WR 136: 49*

Sauer, E. G. Franz. CALCULATIONS OF STRUTHIOUS EGG SIZES FROM MEASUREMENTS OF SHELL FRAGMENTS AND THEIR CORRELATION WITH PHYLOGENETIC ASPECTS. *Cimbebasia* 1(2): 27-55, illus. 1968. [From Biol. Abstr. 50(2), 1969.] *WR 136: 49*
[Univ. Fla., Gainesville.]

Scott, R. E. WING FORMULA OF WILLOW WARBLER AND CHIFFCHAFF. *Bird Study* 16 (1): 60-62, 1 fig. Mar. 1969. *WR 136: 49*
[Dungeness Bird Observatory, Romney Marsh, Kent, England.] *"Phylloscopus collybita and P. trochilus."*

Sealy, Spencer G. COLOR ABERRATIONS IN SOME ALCIDS ON ST. LAWRENCE ISLAND, ALASKA. *Wilson Bull.* 81(2): 213-214, 1 fig. June 1969. *WR 136: 49*
[Univ. Mich., Ann Arbor.] Reports several cases of albinism and one of melanism.--Courtesy/ Paul A. Stewart.

Short, Lester L. AN APPARENTLY MELANIC HAIRY WOODPECKER FROM NEW MEXICO. *Bird-Banding* 40(2): 145-146. Apr. 1969. *WR 136: 49*
[Am. Mus. Nat. Hist., New York, N.Y.] Courtesy/ Paul A. Stewart.

Stresemann, Erwin, and Vesta Stresemann. WINTERQUARTIER UND MAUSER DER DORNGASMUCKE, *SYLVIA COMMUNIS*. [MOLT AND WINTER QUARTERS OF *SYLVIA COMMUNIS*.] *J. Ornithol.* 109(3): 303-314. 1968. [From Biol. Abstr. 50(11), 1969. In German with English summ.] *WR 136: 49*

Sutton, George Miksch. A CHUCK-WILL'S-WIDOW IN POSTNUPTIAL MOLT. *Bull. Okla. Ornithol. Soc.* 2(2): 9-11, illus. June 1969. *WR 136: 49*
[Univ. Okla., Norman.] *"Caprimulgus carolinensis."*

Test, Frederick H. RELATION OF WING AND TAIL COLOR OF THE WOODPECKERS *COLAPTES AURATUS* AND *C. CAFER* TO THEIR FOOD. *Condor* 71(2): 206-211, 2 figs. Apr. 1969. *WR 136: 49*
[Univ. Mich., Ann Arbor.] After two to four months on a carotene-poor diet *Colaptes auratus* and *C. cafer* regenerated pale yellow feathers. In a few hours after raw grated carrots were added to their diets, both species again grew normally colored feathers.--Courtesy/ Paul A. Stewart.

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BIRDS--MORPHOLOGY & PHYSIOLOGY--Continued

Vepsalainen, Kari. WING LENGTH OF LAPWING *(VANELLUS VANELLUS)* BEFORE AND AFTER SKINNING, WITH REMARKS ON MEASURING METHODS. *Ornis Fenn.* 45(4): 124-126. 1968. [From Biol. Abstr. 50(16), 1969.] *WR 136: 50*
[Caloniuksenk, Helsinki, Finland.]

Wallach, J. D., and G. M. Flieg. NUTRITIONAL SECONDARY HYPERPARATHYROIDISM IN CAPTIVE BIRDS. *J. Am. Vet. Med. Assoc.* 155(7): 1046-1051, 6 figs. Oct. 1969. *WR 136: 50*
[Chicago Zool. Park, Brookfield, Ill.]

Wolf, Larry L. BREEDING AND MOLTING PERIODS IN A COSTA RICAN POPULATION OF THE ANDEAN SPARROW. *Condor* 71(2): 212-219, 2 figs. Apr. 1969. *WR 136: 50*
[Syracuse Univ., Syracuse, N.Y.] Breeding of Andean sparrows *(Zonotrichia capensis costaricensis)* occurred in the highlands of Costa Rica from February to June and again in July or August. The annual molt occurred between the two breeding periods, and there was a partial molt before the spring breeding period.--Courtesy/ Paul A. Stewart.

BIRDS--BEHAVIOR

Balgooyen, Thomas G. PYGMY OWL ATTACKS CALIFORNIA QUAIL. *Auk* 86(2): 358, 1 fig. Apr. 1969. *WR 136: 50*
[Univ. Calif., Berkeley.] *"Glaucidium gnoma grinnelli* and *Lophortyx californicus."*--Courtesy/ Paul A. Stewart.

Bartle, J. A. OBSERVATIONS ON THE BREEDING HABITS OF PYCROFT'S PETREL. *Notornis* 15(2): 70-99, illus. 1968. [From Biol. Abstr. 50(9), 1969.] *WR 136: 50*

Beme, R. L. [AVIAN REPRODUCTION IN MOUNTAINS AND ON PLAINS.] *Ornitologiya* 9: 27-48. 1968. [From Bird-Banding 40(2), 1969. In Russian.] *WR 136: 50*

Berger, Andrew J. BEHAVIOR OF HAND-RAISED KIRTLAND'S WARBLERS. *Living Bird* 7: 103-116, illus. 1968. [From Biol. Abstr. 50(6), 1969.] *WR 136: 50*
[Univ. Hawaii, Honolulu.] *"Dendroica kirtlandii."*

Borror, Donald J., and K. C. Halafoff. NOTES ON SONG STRUCTURE IN THE TOWNSEND'S SOLITAIRE. *Wilson Bull.* 81(2): 163-168, 11 figs. June 1969. *WR 136: 50*
[Ohio State Univ., Columbus.] Tonal fractions of from one half to one ninth tone occur in the song of *Myadestes townsendi*, and conventional musical scores are inadequate for representing such elements of a bird's song. A sonogram with notes of the musical scale superimposed on it is probably the closest to a musical representation of a bird's song that can be obtained.--Courtesy/ Paul A. Stewart.

Boudreau, Gordon W. ALARM SOUNDS AND RESPONSES OF BIRDS AND THEIR APPLICATION IN CONTROLLING PROBLEM SPECIES. *Living Bird* 7: 27-46, illus. 1968. [From Biol. Abstr. 50(6), 1969.] *WR 136: 50*
[2510 Glen Canyon Rd., Santa Cruz, Calif.]

Brackbill, Hervey. BROWN THRASHER OBSERVATIONS. *Md. Birdlife* 25(1): 18-20. Mar. 1969. *WR 136: 50*
[2620 Poplar Dr., Baltimore, Md.] Returns of summer residents, nesting data, and instances of flight song.

Cone, Clarence D., Jr. A MATHEMATICAL ANALYSIS OF THE DYNAMIC SOARING FLIGHT OF THE ALBATROSS WITH ECOLOGICAL INTERPRETATIONS. *Va. Inst. Mar. Sci. Spec. Sci. Rept.* 50: 1-104, illus. 1964. [From Biol. Abstr. 50(12), 1969.] *WR 136: 50*
[Va. Inst. Mar. Sci., Gloucester Point, Va.]

Dexter, Ralph W. THIRTEEN-YEAR BREEDING HISTORY OF A CHIMNEY SWIFT. *Ohio J. Sci.* 68(6): 273-276. 1968. [From Biol. Abstr. 50(14), 1969.] *WR 136: 51*
[Kent State Univ., Kent, Ohio.]

Dixon, Keith L. PATTERNS OF SINGING IN A POPULATION OF THE PLAIN TITMOUSE. *Condor* 71(2): 94-101, 5 figs. Apr. 1969. *WR 136: 51*
[Utah State Univ., Logan.] Seventeen spectographically distinct song-types were distinguished in a group of some 12 males. Recordings of countersinging males are virtually identical. The themes reappear over a span of years, resulting in a local "dialect" of shared song-types.--From summ. Courtesy/ Paul A. Stewart.

Ficken, Millicent S., and Robert W. Ficken. RESPONSES OF BLUE-WINGED WARBLERS AND GOLDEN-WINGED WARBLERS TO THEIR OWN AND THE OTHER SPECIES' SONG. *Wilson Bull.* 81(1): 69-74. Mar. 1969. *WR 136: 51*
[Univ. Wis., Milwaukee.] Blue-winged warbler *(Vermivora pinus)* males in Maryland responded to playback of songs of golden-winged warblers *(V. chrysoptera)*. Golden-winged warbler males in West Virginia did not respond to playback of blue-winged warbler songs. Each species responded to playback of its own song.--Courtesy/ Paul A. Stewart.

Fisher, Harvey I. EGGS AND EGG-LAYING IN THE LAYSAN ALBATROSS, *DIOMEDEA IMMUTABILIS*. *Condor* 71(2): 102-112, 4 figs. Apr. 1969. *WR 136: 51*
[Southern Ill. Univ., Carbondale.] The egg-laying season, effect of females age on date of egg-laying, breeding in successive seasons, time of day of egg-laying, process of egg-laying, description of the egg, number of eggs laid in a season, and loss of weight by the egg during incubation are discussed.--Courtesy/ Paul A. Stewart.

Fretwell, Steve. DOMINANCE BEHAVIOR AND WINTER HABITAT DISTRIBUTION IN JUNCOS *(JUNCO HYEMALIS)*. *Bird-Banding* 40(1): 1-25, 9 figs. Jan. 1969. *WR 136: 51*
[Kans. State Univ., Manhattan.] Relates adrenal weight, wing length, and social dominance to field feeding of flocks versus woods feeding of individuals or small groups.--Courtesy/ Paul A. Stewart.

Gotzman, Jerzy. UWAGI O PRZYCZYNACH POWSTAWANIA LEGOW MIEZANYCH NA PRZYKLADZIE LEGU SIEWECZKI RZECZNEJ I RYBITWY POSPOLITEJ. [FACTORS THAT MAY INDUCE A BIRD TO LAY EGGS IN THE NEST OF ANOTHER SPECIES.] *Przegl. Zool.* 11(3): 337-340. 1967. [From Biol. Abstr. 50(14), 1969. In Polish with English summ.] *WR 136: 51*
[Piastow Kolo, Warsaw, Poland.]

Gunter, Gordon. OBSERVATIONS ON A BROWN THRASHER DEHUSKING ACORNS ON THE GROUND. *Ala. Birdlife* 17(1): 23. May 1969. *WR 136: 51*
[Gulf Coast Res. Lab., P.O. Box AG, Ocean Springs, Miss.]

Harrison, C. J. O. THE FIXED FEEDING PATTERN OF YOUNG GOLDCRESTS. *Bird Study* 16(1): 62-63. Mar. 1969. *WR 136: 51*
[British Mus. Nat. Hist., London, England.] Hand-reared *Regulus regulus* recognized both the location and appearance of their natural food.

Harrison, C. J. O. HELPERS AT THE NEST IN AUSTRALIAN PASSERINE BIRDS. *Emu* 69(1): 30-40. June 1969. *WR 136: 51*
[British Mus. Nat. Hist., London, England.] Helpers are often adults apparently capable of breeding, and having the dual capacity to be a member of a dominant pair as well as a helper.

Harrison, J. B. RED-CHESTED CUCKOO FOSTERED BY CAPE ROBINS. *African Wildl.* 21(2): 165-166, illus. 1967. [From Biol. Abstr. 50(6), 1969.] *WR 136: 51*

Holcomb, Larry C. EGG TURNING BEHAVIOR OF BIRDS IN RESPONSE TO COLOR-MARKED EGGS. *Bird-Banding* 40(2): 105-113, 1 fig. Apr. 1969. *WR 136: 52*
[Creighton Univ., Omaha, Nebr.] The eggs were turned at least once in every two days.--Courtesy/ Paul A. Stewart.

Hopcraft, John B. D. SOME NOTES ON THE CHICK-CARRYING BEHAVIOR IN THE AFRICAN JACANA *(ACTOPHILORNIS AFRICANUS). Living Bird* 7: 85-88, illus. 1968. [From Biol. Abstr. 50(6), 1969.] *WR 136: 52*

Horwich, Robert H. BEHAVIORAL ONTOGENY OF THE MOCKINGBIRD. *Wilson Bull.* 81 (1): 87-93. Mar. 1969. *WR 136: 52*
[527 4th St., Fair Lawn, N.J.] Courtesy/ Paul A. Stewart.

Howell, Thomas R., and George A. Bartholomew. EXPERIMENTS ON NESTING BEHAVIOR OF THE RED-TAILED TROPICBIRD, *PHAETHON RUBRICAUDA. Condor* 71(2): 113-119, 3 figs. Apr. 1969. *WR 136: 52*
[Univ. Calif., Los Angeles.] Red-tailed tropicbirds retrieved their own eggs when they were placed 15 cm from the nest, but they usually did not retrieve similarly placed albatross eggs. An artificial egg was not retrieved, but it was incubated when substituted for the bird's egg. Eggs were less frequently retrieved when adult birds were sitting on eggs or chicks than when the nests were empty. Displaced adult birds returned to their nests rather than to eggs or chicks placed outside of their nests, chicks of another size or color were accepted by the adult birds when substituted for their own. Tactile stimuli applied to the bare skin at the base of the chick's bill evoked the gaping response.--From summ. Courtesy/ Paul A. Stewart.

Immelmann, K. SCHLÜSSELREIZE FÜR DIE NISTPLATZWAHL AFRIKANISCHER WEBER (PLOCEIDAE). [KEY STIMULI FOR NESTING PLACE SELECTION OF AFRICAN WEAVERS (PLOCEIDAE).] *Natur & Mus.* 97(3): 89-95, illus. 1967. [From Biol. Abstr. 50 (5), 1969. In German.] *WR 136: 52*
[Zool. Inst. Tech. Hochsch., Braunschweig, Germany.]

Jablonski, Boleslaw. ZALEZNOSE MIEDZY TYPEM LOTU A SPOSOBEM ZDOBYWANIA POKARMU U PTAKOW. [RELATION BETWEEN THE MANNER OF FLYING AND FEEDING HABITS IN BIRDS.] *Przegl. Zool.* 11(3): 322-328. 1967. [From Biol. Abstr. 50(13), 1969. In Polish with English summ.] *WR 136: 52*

Kilham, Lawrence. REPRODUCTIVE BEHAVIOR OF HAIRY WOODPECKERS. III. AGONISTIC BEHAVIOR IN RELATION TO COURTSHIP AND TERRITORY. *Wilson Bull.* 81(2): 169-183, 4 figs. June 1969. *WR 136: 52*
[Dartmouth Med. School, Hanover, N.H.] Displays associated with agonistic behavior, territorial drumming, territorial intrusions of an unmated female, conflicts in nesting period, and interspecific conflicts are discussed.--Courtesy/ Paul A. Stewart.

Kniprath, Ernst. ZUR KÖRPERPFLEGE DES EISVOGELS *(ALCEDO ATTHIS).* [ON GROOMING IN THE KINGFISHER *(ALCEDO ATTHIS).*] *Ornithol. Mitteil.* 21(3): 56-58, 1 fig. Mar. 1969. In German with English summ. *WR 136: 52*
[Bonn Univ., Bonn, Germany.]

Kolar, Kurt. EINIGE BEOBACHTUNGEN AN KAKADUS IN FREIER WILDBAHN. [SEVERAL OBSERVATIONS ON WILD COCKATOOS.] *Zool. Garten* 34(6): 297-306, illus. 1967. [From Biol. Abstr. 50(5), 1969. In German with English summ.] *WR 136: 52*
[Österr. Akad. Wiss., Vienna, Austria.] Diet, breeding habits and behavior of *Kakatoe roseicapilla, Plycotolophus galeritus,* and *Callocephalon fimbriatum* are presented.

Ligon, J. David. FACTORS INFLUENCING BREEDING RANGE EXPANSION OF THE AZURE BLUEBIRD. *Wilson Bull.* 81(1): 104-105. Mar. 1969. *WR 136: 53*
[Univ. N. Mex., Albuquerque.] Northward extension of the range of the azure bluebird *(Sialia sialis fulva)* may be restricted by lack of nesting sites, open parklike forests, and competition with western bluebirds *(S. mexicana).*--Courtesy/ Paul A. Stewart.

Manikowski, Stanislaw. SPOSTRZEZENIA NAD ZACHOWANIEM SIE NIEKTORYCH PTAKOW MORSKICH. [NOTES ON BEHAVIOR OF SOME SEA BIRDS.] *Przegl. Zool.* 10(4): 403-407. 1966. [From Biol. Abstr. 50(13), 1969. In Polish with English summ.] *WR 136: 53*
[Univ. Jagiellonian, Cracow, Poland.] *"Fulmarus glacialis, Sula bassana* and several species of Laridae."

Mielewczyk, Stefan. O POZYWIENIU GASIORKA, *LANIUS COLLURIO* L., W OKOLOCY GNIEZNA (WOJ. POZNANSKIE). [ON THE FOOD OF THE RED-BACKED SHRIKE, *LANIUS COLLURIO* L., NEAR GNIEZNO (PROVINCE OF POZNAN (POLAND)).] *Acta Ornithol.* (Warsaw) 10(6): 157-175, illus. 1967. [From Biol. Abstr. 50(2), 1969. In Polish with Russian and English summ.] *WR 136: 53*

Mitterling, Lloyd A. BLUE JAYS AND BLUEBERRIES. *Bird-Banding* 40(1): 47-48. Jan. 1969. *WR 136: 53*
[Univ. Conn., Storrs.] Jays did not survive being caged without having their natural food, in this case, blueberries, available.--Courtesy/ Paul A. Stewart.

Morse, Douglass H. DISTRACTION DISPLAY OF A PAIR OF BLACK-THROATED GREEN WARBLERS. *Wilson Bull.* 81(1): 106-107. Mar. 1969. *WR 136: 53*
[Univ. Md., College Park.] The warblers dropped from tall trees to nearly ground level, imitating the weak flight of young fledglings, apparently to distract two blue jays from young warblers in the vicinity.--Courtesy/ Paul A. Stewart.

Myers, K., compiler. ECOLOGY AND BEHAVIOUR--A REVIEW OF THE WAYS IN WHICH AUSTRALIAN ECOLOGISTS USE BEHAVIOUR IN THEIR STUDIES. *Proc. Ecol. Soc. Australia* 2: 79-106, 4 figs. 1967. *WR 136: 53*
[CSIRO, Div. Wildl. Res., Canberra, Australia.]

Oberholzer, A., and B. Tschanz. ZUM VERHALTEN DE JUNGEN TROTTELLUMME *(URIA AALGE)* GEGENUBER FISCH. [BEHAVIOR OF YOUNG GUILLEMOT CHICKS *(URIA AALGE)* TOWARDS FISH.] *Rev. Suisse Zool.* 75(1): 43-51, illus. 1968. [From Biol. Abstr. 50(6), 1969. In German with French and English summ.] *WR 136: 53*
[Zool. Inst., Bern Univ., Bern, Norway.]

Persson, Berith, and Jan Samson. HÄCKNINGSRESULTATET HOS SMÅFÅGELFAUNAN I FÅGELSÅNGSDALEN ÅR 1965. [HATCHING SUCCESS AMONG THE SMALL BIRD FAUNA IN FÅGELSÅNG VALLEY IN 1965.] *Fauna & Flora* 63(6): 253-262, illus. 1967. [From Biol. Abstr. 50(10), 1969. In Swedish.] *WR 136: 53*
"Parus major and *Sylvia communis."*

Prokof'eva, I. V. [FEEDING HABITS OF THE YELLOWHAMMER *(EMBERIZA CITRINELLA L.).*] *Biol. Nauk* 11(7): 32-35. 1968. [From Biol. Abstr. 50(13), 1969. In Russian.] *WR 136: 53*
[Leningrad Pedagog. Inst., Leningrad, USSR.]

Rice, Orville O. RECORD OF FEMALE CARDINALS SHARING NEST. *Wilson Bull.* 81 (2): 216. June 1969. *WR 136: 53*
[1663 W. 28th Terrace, Topeka, Kans.] The eggs and young were attended by two female cardinals *(Richmondena cardinalis)*, one of which was an albino.--Courtesy/ Paul A. Stewart.

Samuel, David E. HOUSE SPARROW OCCUPANCY OF CLIFF SWALLOW NESTS. *Wilson Bull.* 81(1): 103-104. Mar. 1969. *WR 136: 54*

[W. Va. Univ., Morgantown.] House sparrows *(Passer domesticus)* appropriated nests of cliff swallows *(Petrochelidon pyrrhonota)* before eggs were laid, after eggs were laid, and after young had hatched. The sparrows simply moved in and defended the nests from the swallows.--Courtesy/ Paul A. Stewart.

Samuel, David E. NEST ABANDONMENT AND POSSIBLE MANAGEMENT OF THE CLIFF SWALLOW IN WEST VIRGINIA. *Trans. NE Sect. Wildl. Soc., 26th NE Fish & Wildl. Conf. 9-12 Feb. 1969.* p. 181-185. 1969. *WR 136: 54*

[W. Va. Univ., Morgantown.] Abstract: Nesting success of the cliff swallow was observed while carrying out an ecological and behavioral study on barn swallows and cliff swallows. Fifty-six of 90 nests built during 1967 and 1968 were unsuccessful. Nests were unsuccessful because of: house sparrow interference (58.9%), barn alterations (16.1%), fallen down (7.1%), and unknown causes (17.9%). The writer believes that the group "unknown causes" represents nests abandoned by birds joining migrating flocks. Primary management practices might include: destroying nests taken over by house sparrows, destroying house sparrows, and farmer education concerning cliff swallow nesting habits.

Sen Gupta, S. N. INDIAN HOUSE SPARROW ATTACKS GRASS SNAKE. *Auk* 86(2): 339. Apr. 1969. *WR 136: 54*

[Univ. Calcutta, Calcutta, India.] *"Passer domesticus."*--Courtesy/ Paul A. Stewart.

Seppä, Jussi. THE CUCKOO'S ABILITY TO FIND A NEST WHERE IT CAN LAY AN EGG. *Ornis Fenn.* 46(2): 78-79. 1969. In English with Finnish summ. *WR 136: 54*

Translation of a paper in Finnish published in 1930. The cuckoo was observed searching for a nest, apparently guided by the intensity of the hosts' reactions. The same call is used by several species in the presence of a cuckoo.

Skutch, Alexander F. A STUDY OF THE RUFOUS-FRONTED THORNBIRD AND ASSOCIATED BIRDS. PART II: BIRDS WHICH BREED IN THORNBIRDS' NESTS. *Wilson Bull.* 81(2): 123-139, 2 figs. June 1969. *WR 136: 54*

[El Quizarrá, San Isidro del General, Costa Rica.] The nest of the rufous-fronted thornbird *(Phacellodomus rufifrons)* is used by at least nine species of birds. The troupial *(Icterus icterus)* is the chief species; it regularly uses thornbird nests wherever the two species occur together.--Courtesy/ Paul A. Stewart.

Spofford, Sally Hoyt. FLICKER INCUBATES PINK PLASTIC BALLS, ON A LAWN, FOR FIVE WEEKS. *Wilson Bull.* 81(2): 214-215. June 1969. *WR 136: 54*

[Cornell Univ., Ithaca, N.Y.] The female yellow-shafted flicker *(Colaptes auratus)* laid four eggs beside the balls and sat on the balls even after the eggs had been removed. The male of the pair also took turns sitting on the balls.--Courtesy/ Paul A. Stewart.

Strokov, V. V. [CHARACTERISTICS OF NESTING OF BIRDS IN ARTIFICIAL NESTS AND IN NATURAL TREE HOLLOWS.] *Zool. Zhur.* 46(12): 1831-1836. 1967. [From Biol. Abstr. 50(2), 1969. In Russian with English summ.] *WR 136: 54*

Strokov, V. V. [THROWING OF NESTLINGS OUT OF THEIR NEST BY ADULT BIRDS.] *Zool. Zhur.* 47(6): 951-952. 1968. [From Biol. Abstr. 50(6), 1969. In Russian with English summ.] *WR 136: 54*

Sviridenko, P. A. [FOOD STORAGE BY THE NUTHATCH *(SITTA EUROPAEA).*] *Vestnik Zool.* 1968(1): 89-90. 1968. [From Bird-Banding 40(1), 1969. In Russian.] *WR 136: 54*

BIRDS--BEHAVIOR--Continued

Thorpe, W. H. PERCEPTUAL BASIS FOR GROUP ORGANIZATION IN SOCIAL VERTEBRATES, ESPECIALLY BIRDS. *Nature* (London) 220(5163): 124-128, illus. 1968. [From Biol. Abstr. 50(6), 1969.] *WR 136: 55*
[Cambridge Univ., Cambridge, England.]

Won, Pyong-Oh, Han-Chung Woo, Kyu-Whang Ham, Mi-Za Chun, and Yung-Sik Park. [CHICK FOOD ANALYSIS OF SOME KOREAN BIRDS (II).] *Misc. Repts. Yamashina's Inst. Ornithol. Zool.* 5(3): 259-277, illus. 1968. [From Biol. Abstr. 50(15), 1969. In Japanese with English summ.] *WR 136: 55*
[Kyung Hee Univ., Seoul, Korea.] *"Alauda arvensis quelpartae, Dendronanthus indicus, Emberiza cioides castaneiceps, Eophona m. migratoria, Lanius cristatus lucionensis, Motacilla cinerea caspica, Motacilla alba leucopsis, Paradoxornis webbiana fulvicauda, Pica pica japonica,* and *Saxicola torquata stejnegeri."*

BIRDS--MIGRATION & BANDING REPORTS

Bernhoft-Osa, A. RINGMERKINGSRESULTATER FRA REVTANGEN PA JAEREN I 1965. [BIRD-BANDING RESULTS FROM REVTANGEN IN JAEREN IN 1965.] *Sterna* 7(7): 331-342. 1967. [From Biol. Abstr. 50(14), 1969. In Norwegian with English summ.] *WR 136: 55*
[Ornithologisk Stasjon, Revtangen, Norway.]

Dol'nik, V. R. [ROLE OF FAT DEPOTS IN METABOLIC REGULATION IN BIRD BEHAVIOR DURING MIGRATION *(FRINGILLA* SP.*).*] *Zool. Zhur.* 47(8): 1205-1216, illus. 1968. [From Biol. Abstr. 50(15), 1969. In Russian with English summ.] *WR 136: 55*
[Inst. Zool., Acad. Sci. USSR, Leningrad, USSR.]

Drewien, Rod C., and Larry F. Fredrickson. BAND RECOVERY DISTRIBUTION OF DOUBLE-CRESTED CORMORANTS FROM SOUTH WAUBAY LAKE. *S. Dak. Bird Notes* 21(2): 28-32, 1 fig. June 1969. *WR 136: 55*
[S. Dak. Dept. Game, Fish & Parks, Aberdeen.] Most cormorants from the Waubay Lake colony migrate south through the Great Plains to their wintering grounds on the Texas Gulf Coast and adjacent coastal waters in Mexico. Recovery information is compared with results of a 1932 survey.

Emlen, Stephen T. BIRD MIGRATION: INFLUENCE OF PHYSIOLOGICAL STATE UPON CELESTIAL ORIENTATION. *Science* 165(3894): 716-718, 3 figs. 15 Aug. 1969. *WR 136: 55*
[Cornell Univ., Ithaca, N.Y.] Abstract: By means of photoperiod manipulation, the physiological states of spring and autumn migratory readiness were induced in indigo buntings. The orientational tendencies of these two groups of birds were tested simultaneously in May 1968, under an artificial, spring planetarium sky. Birds in spring condition oriented northward; those in autumnal condition, southward. These results suggest that changes in the internal physiological state of the bird rather than differences in the external stimulus situation are responsible for the seasonal reversal of preferred migration direction in this species.

Fuchs, Eduard. DER HERBSTZUG AUF DEM HAHNENMOOSPASS IN DEN JAHREN 1965 UND 1966. [THE AUTUMNAL MIGRATION IN THE HAHNENMOOSPASS (BERNESE ALPS) DURING 1965 AND 1966.] *Ornithol. Beobachter* 65(3): 85-109, 7 figs. Sept. 1968. In German with English summ. *WR 136: 55*
[Fürfelderstrasse 57, Riehen, Switzerland.] Emphasis in raptors, pigeons and larks and the problem of high altitude migration.

Grimeland, Anne-Marie. RINGMERKINGSRESULTATER FOR SANDLOPER. [ON THE MIGRATION OF SANDERLINGS *(CROCETHIA ALBA)* RINGED IN NORWAY.] *Sterna* 7(8): 361-368. 1967. [From Biol. Abstr. 50(12), 1969. In Norwegian with English summ.] *WR 136: 55*
[Stavenger Mus., Stavenger, Norway.]

Hansen, Magnus Bang. EFTERARSTRAEK PÅ LANGELAND 1962, 1963 OG 1964. [AUTUMN MIGRATION ON LANGELAND 1962, 1963 AND 1964.] *Dansk Ornithol. Foren. Tidsskr.* 62 (1): 1-6, illus. 1968. [From Biol. Abstr. 50(9), 1969. In Danish with English summ.] *WR 136: 56*
[Fyrrebakken 5, Kalundborg, Finland.]

Hildén, Olavi. THE BIRD STATIONS OF FINLAND AND THEIR ACTIVITIES IN 1967. *Ornis Fenn.* 45(2): 58-65. 1968. [From Biol. Abstr. 50(5), 1969. In English with Finnish summ.] *WR 136: 56*

Hosono, Tetsuo. A STUDY OF THE LIFE HISTORY OF BLUE MAGPIE: 4. FLOCK MOVEMENTS. *Misc. Repts. Yamashina's Inst. Ornithol. Zool.* 5(2): 177-193, illus. 1967. [From Biol. Abstr. 50(11), 1969.] *WR 136: 56*
[16-996 Yodogabashi, Nagano City, Nagano, Japan.]

Keeton, William T. ORIENTATION BY PIGEONS: IS THE SUN NECESSARY? *Science* 165(3896): 922-928, 11 figs. 29 Aug. 1969. *WR 136: 56*
[Cornell Univ., Ithaca, N.Y.] Abstract: Although most recent hypotheses of pigeon homing have assigned an essential role to the sun, there has been some evidence suggesting that the sun is not essential. Two series of releases were designed to examine the question more carefully. Birds whose internal clocks had been shifted 6 hours were used in the critical tests. Under sun, the vanishing bearings of the clock-shifted birds were deflected in the direction predicted by a hypothesis of use of the sun as a simple compass. By contrast, under total overcast the bearings of both the clock-shifted and the control birds were homeward oriented and there was no difference between them, even at a release site the birds could never have seen previously. Therefore it is concluded that the sun is used as a compass when it is available, but that the pigeon navigation system contains sufficient redundancy to make accurate orientation possible in the absence of both the sun and familiar landmarks; the orientational cues used under such conditions do not require time compensation. This conclusion is in complete disagreement with the Matthews sun-arc hypothesis of pigeon navigation, and it makes necessary a major reformulation (at the very least) of the other principal hypothesis, that of Kramer.

King, Ben. SWALLOW BANDING IN BANGKOK, THAILAND. *Bird-Banding* 40(2): 95-104, 3 figs. Apr. 1969. *WR 136: 56*
[Yale Univ., New Haven, Conn.] Of 73,276 barn swallows *(Hirundo rustica)* banded in Bangkok, 81 were recovered outside Thailand. About 48% of those banded in 1965 returned to the same roost in 1966. The method of catching the birds in mist nets high above the streets is discussed.--Courtesy/ Paul A. Stewart.

Linnetyinen, Risto. THE MIGRATION ROUTES OF FINNISH COMMON AND ARCTIC TERNS *(STERNA HIRUNDO* AND *S. PARADISAEA)* IN SCANDINAVIA. *Ornis Fenn.* 45(4): 114-124, illus. 1968. [From Biol. Abstr. 50(16), 1969.] *WR 136: 56*
[Turku Univ., Turku, Finland.]

Moller, Arne, and Jørgen Rabøl. FORARSTRAEKBEVAEGELSER OF SPURVEFUGLE (PASSERES) VED BLAVAND: MED BE MAERKNINGER OM ARSAGERNE TIL OMVENDT TRAEK. [MIGRATORY MOVEMENTS IN SPRING OF PASSERINES AT BLAVAND, WEST JUTLAND (DENMARK): WITH REMARKS ON THE CAUSES OF REVERSED MIGRATION.] *Dansk Ornithol. Foren. Tidsskr.* 61(3/4): 168-182, illus. 1968. [From Biol. Abstr. 50(2), 1969. In Danish with English summ.] *WR 136: 56*

Nordstrom, Goran. DIE VOGELBERINGUNG IN FINNLAND IM JAHRE 1964. [BIRD BANDING IN FINLAND IN THE YEAR 1964.] *Memo. Soc. Fauna & Flora Fenn.* 42: 55-163. 1966. [From Biol. Abstr. 50(5), 1969. In German.] *WR 136: 56*

Penney, Richard L. ADÉLIE PENGUIN ORIENTATION. *Antarctic J. U.S.* 2(4): 107, illus. 1967. [From Biol. Abstr. 50(15), 1969.] *WR 136: 56*
[Inst. Res. Animal Behavior, N.Y. Zool. Soc., New York, N.Y.]

BIRDS--MIGRATION & BANDING REPORTS--Continued

Rabøl, Jørgen. VISUAL DIURNAL MIGRATORY MOVEMENTS. *Dansk Ornithol. Foren. Tidsskr.* 61(2): 73-99, illus. 1967. [From Biol. Abstr. 50(4), 1969.] *WR 136: 57*
[Copenhagen Univ., Copenhagen, Denmark.]

Rabøl, Jørgen. REVERSED MIGRATION AS THE CAUSE OF WESTWARD VAGRANCY BY FOUR PHYLLOSCOPUS WARBLERS. *British Birds* 62(3): 89-92, 1 fig. Mar. 1969. *WR 136: 57*
[Copenhagen Univ., Copenhagen, Denmark.] *"Phylloscopus proregulus, P. inornatus, P. trichiloides,* and *P. borealis."*

Rembser, Karl. BEMERKENSWERTE WIEDERFANGE CINES TRAUERSCHNAPPERS--*FICEDULA HYPOLEUCA.* [REMARKABLE RECURRENT FINDINGS OF *FICEDULA HYPOLEUCA.*] *Luscinia* 40 (2): 56. 1967. [From Biol. Abstr. 50(5), 1969. In German.] *WR 136: 57*
The pied flycatcher traveled 1200 km in 15 days, built a nest and laid two eggs.

Shumakov, M. E. [AN EXPERIMENT FOR DETERMINING THE POSSIBILITY OF MAGNETIC ORIENTATION IN BIRDS.] *Voprosy Bioniki.* p. 519-523. 1967. [From Bird-Banding 40(1), 1969. In Russian.] *WR 136: 57*

Smogorzhevskii, L. A. [INITIAL FLIGHT DIRECTION IN HOMING EXPERIMENTS.] *Vestnik Zool.* 3: 55-59. 1967. [From Biol. Abstr. 50(3), 1969. In Russian with English summ.] *WR 136: 57*
[Kiev State Univ., Kiev, USSR.] The initial direction, which Matthews called "senseless," is of great biological importance since it helps birds to restore a migratory direction and later on more or less corrects the direction towards "home."

Southern, William E. EXPERIMENTS ON THE HOMING ABILITY OF PURPLE MARTINS. *Living Bird* 7: 71-84, illus. 1968. [From Biol. Abstr. 50(6), 1969.] *WR 136: 57*
[Northern Ill. Univ., De Kalb.]

Techet, H. CENTRE ORNITHOLOGIQUE RHONE-ALPES COMPTE RENDU DE BAGUAGE POUR L'ANNEE 1966. [RHONE-ALPS ORNITHOLOGICAL CENTER--SUMMARY OF BIRD BANDING FOR 1966.] *Bull. Mens. Soc. Linn. Lyon* 37(1): 44-48. 1968. [From Biol. Abstr. 50 (6), 1969. In French.] *WR 136: 57*
[Lab. Zool. Gen., Lyon, France.]

Won, Pyong-Oh, Han-Chung Woo, Kyu-Whang Ham, Moo-Boo Yoon, and Mi-Za Chun. [SEASONAL DISTRIBUTION AND ECOLOGY OF MIGRANT BIRD POPULATIONS STUDIED BY MIST-NETTING AND BANDING IN KOREA (II).] *Misc. Repts. Yamashina's Inst. Ornithol. Zool.* 5(3): 241-258, illus. 1968. [From Biol. Abstr. 50(15), 1969. In Japanese with English summ.] *WR 136: 57*
[Kyung Hee Univ., Seoul, Korea.]

BIRDS--MANUALS, FAUNAS, COMMUNITIES

Carter, William A. ANNOTATED LIST OF SUMMER BIRDS OF THE MCCURTAIN GAME PRESERVE, MCCURTAIN COUNTY, OKLAHOMA. *Proc. Okla. Acad. Sci.* 47: 60-66. 1968. [From Biol. Abstr. 50(7), 1969.] *WR 136: 57*
[East Central State Coll., Ada, Okla.]

Clapp, Roger B. THE BIRDS OF SWAINS ISLAND SOUTH-CENTRAL PACIFIC. *Notornis* 15(3): 198-206, illus. 1968. [From Biol. Abstr. 50(7), 1969.] *WR 136: 57*
[U.S. Natl. Mus., Washington, D.C.] Sixteen species.

Cody, Martin L. ON THE METHODS OF RESOURCE DIVISION IN GRASSLAND BIRD COMMUNITIES. *Am. Naturalist* 102(924): 107-147, illus. 1968. [From Biol. Abstr. 50(2), 1969.] *WR 136: 57*
[Univ. Calif., Los Angeles.]

Fleming, Robert L., and Melvin A. Traylor. DISTRIBUTIONAL NOTES ON NEPAL BIRDS. *Fieldiana Zool.* 53(3): 147-203. 1968. [From Biol. Abstr. 50(5), 1969.] *WR 136: 58*
For 124 spp.

Fremming, Odd Reidar, and Tore Slagsvold. KVANTITATIV FUGLETAKSERING I GRANSKOG BASERT PA PROVEFELT- OG SJEKKMETODEN. [QUANTITATIVE SURVEY OF BIRD POPULATIONS IN A SPRUCE FOREST, BASED ON THE MAPPING AND CHECK METHODS.] *Fauna* (Oslo) 19(4): 183-195, illus. 1966. [From Biol. Abstr. 50(3), 1969. In Norwegian.] *WR 136: 58*
[Slagsvold, Elvefaret, Oslo, Norway.]

Greenslade, P. J. M. ISLAND PATTERNS IN THE SOLOMON ISLANDS BIRD FAUNA. *Evolution* 22(4): 751-761. 1968. [From Biol. Abstr. 50(15), 1969.] *WR 136: 58*
[CSIRO, Glen Osmond, South Australia.]

Gyllin, Roger. VINTERFÅGELFAUNAN VID OSET: II. NON-PASSERINER. [THE WINTER BIRD FAUNA IN OSET AT LAKE HJÄLMAREN, SWEDEN: II. NON-PASSERINES.] *Fauna & Flora* 63(4/5): 223-244, illus. 1967. [From Biol. Abstr. 50(10), 1969. In Swedish.] *WR 136: 58*

Havlin, Jiri. BIRDS BREEDING ON THE NAMESTSKE RYBNIKY PONDS (CZECHOSLOVAKIA). *Prirodoved. Pr. Ustavu Csek. Akad. Brne* 1(11): 429-471, illus. 1967. [From Biol. Abstr. 50(3), 1969.] *WR 136: 58*
[Inst. Vertebrate Zool., Brno, Czechoslovakia.]

Hayward, C. Lynn. BIRDS OF THE UPPER COLORADO RIVER BASIN. *Brigham Young Univ. Sci. Bull. Biol. Ser.* 9(2): 1-64, illus. 1967. [From Biol. Abstr. 50(2), 1969.] *WR 136: 58*
[Brigham Young Univ., Provo, Utah.] Includes an annotated list of birds of the area.

Hojer, Jan. GOTSKA SANDÖNS FÅGELFAUNA: EN KRITISK STUDIE. [GOTLAND'S SAND ISLAND'S (SWEDEN) BIRD FAUNA.] *Fauna & Flora* 63(4/5): 149-222, illus. 1967. [From Biol. Abstr. 50(10), 1969. In Swedish.] *WR 136: 58*

Howell, Thomas R. AVIAN DISTRIBUTION IN CENTRAL AMERICA. *Auk* 86(2): 293-326, 16 figs. Apr. 1969. *WR 136: 58*
[Univ. Calif., Los Angeles.] The present distribution of birds in the region southward from the United States-Mexico border is correlated with the geological history of the area.--Courtesy/ Paul A. Stewart.

Jakobs, Bernhard. ORNITHOLOGISCHE BEOBACHTUNGEN AUS DEM TRIERER TAL UND UMGEBUNG: BERICHTSJAHR 1965. [ORNITHOLOGICAL OBSERVATIONS FROM THE TRIER VALLEY AND ENVIRONS IN 1965.] *Emberiza* 1(3): 59-69. 1966. [From Biol. Abstr. 50(5), 1969. In German.] *WR 136: 58*
[Helenenstrasse 27, Trier, Germany.]

Johnston, David W. THE THRUSHES OF GRAND CAYMAN ISLAND, B.W.I. *Condor* 71 (2): 120-128, 5 figs. Apr. 1969. *WR 136: 58*
[Univ. Fla., Gainesville.] Contains information on measurements, colors of soft parts, vocalizations, molt, and habitat preferences of the Grand Cayman thrush *(Mimocichla ravida)*. Because none of these thrushes has been found since 1938, it is considered to be extinct.--Courtesy/ Paul A. Stewart.

Keve, A., and B. L. Sage. ORNITHOLOGICAL OBSERVATIONS NEAR THE RIVERS BODROG AND TISZA (BIRD CHECKLIST). *Tiscia* 3: 91-92. 1967. [From Biol. Abstr. 50(5), 1969.] *WR 136: 58*

Kumerloeve, H. RECHERCHES SUR L'AVIFAUNE DE LA REPUBLIQUE ARABE SYRIENNE ESSAI D'UN APERCU. [INVESTIGATIONS ON THE AVIFAUNA OF THE ARAB REPUBLIC OF SYRIA. A ROUGH ESTIMATION.] *Alauda* 35(4): 243-266, illus. 1967. [From Biol. Abstr. 50(2), 1969. In French.] *WR 136: 58*

Kuroda, Nagahisa. [AVIFAUNAL SURVEY OF MT. HAYACHINE IN IWATE, N. HONSHU.] *Misc. Repts. Yamashina's Inst. Ornithol. Zool.* 5(3): 214-240, illus. 1968. [From Biol. Abstr. 50(16), 1969. In Japanese with English summ.] *WR 136: 59*
[Yamashina's Inst. Ornithol., Tokyo, Shibuya, Japan.]

Kuroda, Nagahisa. [A BIRD CENSUS IN THE IMPERIAL PALACE (JAPAN) FOR 1967.] *Misc. Repts. Yamashina's Inst. Ornithol. Zool.* 5(3): 202-213, illus. 1968. [From Biol. Abstr. 50(16), 1969. In Japanese with English summ.] *WR 136: 59*
[Yamashina's Inst. Ornithol., Tokyo, Shibuya, Japan.]

Lovenskiold, Herman L. AVIFAUNA SVALBARDENSIS: WITH A DISCUSSION ON THE GEOGRAPHICAL DISTRIBUTION OF THE BIRDS IN SPITSBERGEN AND ADJACENT ISLANDS. *Norsk Polarinst. Skr.* 129: 1-455, illus. 1964. [From Biol. Abstr. 50(2), 1969.] *WR 136: 59*
[Norsk Polarinst., Oslo, Norway.]

Macmillan, Andrew T., compiler. SCOTTISH BIRD REPORT 1968. *Scottish Birds* 5 (6): 302-356. Summer 1969. *WR 136: 59*
Every species known to have occurred in Scotland in 1968 is listed. Number of birds sighted and location of sighting is given.

Manikowski, Stanislaw. OBSWERWACJE NAD WYSTEPOWANIEM I ROZMIESCZCZENIEM PTAKOW NA BALTYKU W OKOLICY POLWYSPU HELSKIEGO. [OBSERVATIONS ON THE OCCURRENCE AND DISTRIBUTION OF BIRDS IN THE BALTIC NEAR THE HEL PENINSULA (POLAND).] *Acta Ornithol. Warszawa* 11(3): 45-59, illus. 1968. [From Biol. Abstr. 50(13), 1969. In Polish with Russian and English summ.] *WR 136: 59*
[Univ. Jagiellonian, Cracow, Poland.]

Maruyama, Naoki. [THE AVIFAUNA AT THE SIDE OF THE RIVER MIOMOTE: I. THE WILD BIRDS OF THE BROAD-LEAVED DECIDUOUS THIN FOREST AND THE POPLAR FOREST AT A HOLM IN MAY AND JUNE.] *Bull. Nagaoka Munic. Sci. Mus.* 4: 15-21. 1967. [From Biol. Abstr. 50(16), 1969. In Japanese with English summ.] *WR 136: 59*
[Nagaoka Munic. Sci. Mus., Nagaoka, Niigata, Japan.]

Merton, D. V., and I. A. E. Atkinson. NOTES ON THE BIRDS OF COPPERMINE ISLAND, HEN AND CHICKENS GROUP (NEW ZEALAND). *Notornis* 15(2): 100-108, illus. 1968. [From Biol. Abstr. 50(13), 1969.] *WR 136: 59*
[Wildl. Serv., Dept. Internal Affairs, Wellington, New Zealand.]

Olivares, Antonio. AVIFAUNAE COLUMBIENSIS, NOTULAE: II. SEIS NUEVAS AVES PARA COLOMBIA Y APUNTAMIENTO SOBRE SESENTA ESPECIES Y SUBESPECIES REGISTRADAS ANTERIORMENTE. [THE COLOMBIAN AVIFAUNA: II. SIX SPECIES NEW FOR COLOMBIA AND NOTES ON 60 OTHER COLOMBIAN SPECIES AND SUBSPECIES.] *Caldasia* 10(46): 39-58. 1966. [From Biol. Abstr. 50(2), 1969. In Spanish.] *WR 136: 59*
[Univ. Nat., Colombia, Bogota, Colombia.]

Pethon, Per. AVIFAUNISTISKE IAKTTAGELSER I SYD- VARANGER SOMMEREN 1966. [OBSERVATIONS OF AVIFAUNA, SOUTH VARANGER 1966.] *Fauna* (Oslo) 19(4): 196-211, illus. 1966. [From Biol. Abstr. 50(2), 1969. In Norwegian.] *WR 136: 59*
[Zool. Mus. Sarsgt., Oslo, Norway.]

Reed, Austin. LES OISEAUX AQUATIQUES DE L'ÎLE AUX BASQUES, L'ÎLE AUX POMMES ET LES RAZADES: UN GUIDE D'INTRODUCTION. [THE AQUATIC BIRDS OF THE ÎLE AUX BASQUES, ÎLE AUX POMMES AND LES RAZADES: AN INTRODUCTORY GUIDE.] *Québec Serv. Faune Bull.* 6: 1-24, illus. 1965. [From Biol. Abstr. 50(2), 1969. In French.] *WR 136: 59*

Rogers, David T., Jr. BIRD POPULATIONS OF FOUR DIFFERENT PLANT COMMUNITIES IN THE BLUE RIDGE MOUNTAINS. *J. Ala. Acad. Sci.* 38(2): 172-176. 1967. [From Biol. Abstr. 50(4), 1969.] *WR 136: 59*
[Univ. Ala., University.]

Rucner, Dragutin. [THE MEANING OF THE BIRD FAUNA OF THE RELICT PINE GROVES OF MALA KAPELA (YUGOSLOVIA) AND THEIR RELATIONS WITH THE BIRD FAUNAS OF OTHER FOREST COMMUNITIES.] *Larus* 16/18. p. 38-78, illus. 1962/1964. [From Biol. Abstr. 50(13), 1969. In Serbo-Croatian with German summ.] *WR 136: 60*

Rucner, Dragutin. [CONTRIBUTION TO THE KNOWLEDGE OF THE ECOLOGICAL SIGNIFICANCE OF THE BIRD FAUNA IN THE ENVIRONS OF KLANEC IN HRVATSKO ZAGORJE (YUGOSLAVIA).] *Larus* 19. p. 86-106, illus. 1965. [From Biol. Abstr. 50(13), 1969. In Serbo-Croatian with German summ.] *WR 136: 60*

Rucner, Renata. PRILOG KVALITATIVNOJ I KVANTITATIVNOJ ANALIZI ORNITOFAUNE NEKIH SUMSKIH ZAJEDNICA ZAPADNE HRVATSKE. [CONTRIBUTIONS TO THE QUALITATIVE AND QUANTITATIVE SURVEY OF THE BIRD FAUNA IN SOME FOREST COMMUNITIES OF WESTERN CROATIA.] *Larus* 19. p. 44-85, illus. 1965 (1967). [From Biol. Abstr. 50(11), 1969. In Serbo-Croatian with German summ.] *WR 136: 60*

Schonhardt, Hans. ZUR VOGELWELT DES SCHWARZWALDES. 1. TEIL. [ON THE AVIFAUNA OF THE BLACK FOREST. PART 1.] *Ornithol. Mitteil.* 21(4): 81-84. Apr. 1969. In German. *WR 136: 60*
Podicipitidae through Falconidae.

Siegfried, W. R. ECOLOGICAL COMPOSITION OF THE AVIFAUNAL COMMUNITY IN A STELLENBOSCH SUBURB. *Ostrich* 39(2): 105-129, illus. 1968. [From Biol. Abstr. 50(7), 1969.] *WR 136: 60*
[Univ. Cape Town, Cape Town, South Africa.]

Smithe, Frank B. THE BIRDS OF TIKAL. *Nat. Hist. Press*, N.Y. xxix + 350 p. + 39 pls. 1966. Price $7.50. *WR 136: 60*
[Douglaston, N.Y.] A field identification volume for the 280 spp. of birds presently known in the Tikal, Guatemala, area, including much of the Peten. More than 100 spp. have been illustrated in the 30 color paintings by H. Wayne Trimm, most of which present problems in field identification or have not previously been illustrated in color. Full descriptions of characteristic body markings and colors, nesting habits, and common songs and calls are given for each species. The appendix includes rainfall and temperature charts recorded during a four-year period, and illustrations of pensile or hanging nests of the various flycatchers. --From jacket.

Spaans, A. L., and C. Swennen. DE VOGELS VAN VLIELAND. [THE BIRDS OF VLIELAND (WEST FRISIAN ISLANDS).] *Wetenschappelijke Mededelingen* no. 75. 104 p., illus. May 1968. In Dutch with English summ. *WR 136: 60*
Contains an annotated list of 243 spp. of birds that have been observed on this island.

Thompson, Max C., and C. Douglas Hackman. BIRDS OF THE TOKELAU ISLANDS (NEW ZEALAND CHECKLIST). *Notornis* 15(2): 109-116. 1968. [From Biol. Abstr. 50 (9), 1969.] *WR 136: 60*
[Smithsonian Inst., Washington, D.C.]

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[Field Mus. Nat. Hist., Chicago, Ill.] Annotated list of 139 spp.

Winterbottom, J. M. THE AVIFAUNAS OF THREE AGRICULTURAL HABITATS IN THE SOUTH-WESTERN CAPE. *Ostrich* 39(2): 51-60. 1968. [From Biol. Abstr. 50(6), 1969.] *WR 136: 60*
[Univ. Cape Town, Cape Town, South Africa.]

BIRDS--MANUALS, FAUNAS, COMMUNITIES--Continued

Winterbottom, J. M. THE AVIFAUNAS OF THREE FRESH WATER HABITATS IN THE SOUTHWEST CAPE. *Ostrich* 39(2): 130-138. 1968. [From Biol. Abstr. 50(7), 1969.] *WR 136: 61*
[Univ. Cape Town, Cape Town, South Africa.]

Winterbottom, J. M. REMARKS ON SOME FOREST AVIFAUNAS OF SOUTHERN AFRICA, WITH SPECIAL REFERENCE TO THE SOUTHWEST CAPE. *Ostrich* 39(2): 146-149. 1968. [From Biol. Abstr. 50(7), 1969.] *WR 136: 61*
[Univ. Cape Town, Cape Town, South Africa.]

BIRDS--POPULATIONS & FLUCTUATIONS

Anderson, Tim. IAGTTAGELSER AF FUGLE VED AVEDORE HOLME 1961-1966. [OBSERVATIONS OF BIRDS AT AVEDORE HOLME (EAST ZEALAND) 1961-1966.] *Dansk Ornithol. Foren. Tidsskr.* 61(3/4): 117-128. 1968. [From Biol. Abstr. 50(3), 1969. In Danish.] *WR 136: 61*
[Observ. Birds Avedore Holme, Holme, New Zealand.]

Kleen, Vernon M. A SUMMARY OF EVENING GROSBEAKS IN MARYLAND. *Md. Birdlife* 25(1): 3-14, 5 figs. Mar. 1969. *WR 136: 61*
[339 Talbot Ave., Laurel, Md.] A compilation of banding and sight records of the evening grosbeak in Md. (since 1922). Recoveries and retraps are plotted.

Korenberg, E. I. [RATES OF FOREST EXPLOITATION AND CHANGES IN BIRD POPULATIONS IN THE EUROPEAN FORESTS OF THE SOUTHERN TAIGA.] *Bull. Moscow Obshch. Ispit. Prirody (Biol.)* 72(6): 32-36, illus. 1967. [From Biol. Abstr. 50(2), 1969. In Russian with English summ.] *WR 136: 61*

Reid, Brian. AN INTERPRETATION OF THE AGE STRUCTURE AND BREEDING STATUS OF AN ADELIE PENGUIN POPULATION. *Notornis* 15(3): 193-197. 1968. [From Bird-Banding 40(2), 1969.] *WR 136: 61*

Sharrock, J. T. R. GREY WAGTAIL PASSAGE AND POPULATION FLUCTUATIONS IN 1956-67. *Bird Study* 16(1): 17-34, 6 figs. Mar. 1969. *WR 136: 61*
[59 Curlew Crescent, Brickhill, Bedford, England.] Autumn grey wagtail passage reached peaks in 1959 and 1961, dropped one-third to one-fifth of this level in 1963, and has gradually increased in subsequent years.--From summ.

Shuntov, V. P. [A QUANTITATIVE ESTIMATION OF SEA BIRDS IN THE EASTERN PART OF THE INDIAN OCEAN.] *Okeanologiya* 8(3): 494-501, illus. 1968. [From Biol. Abstr. 50(13), 1969. In Russian with English summ.] *WR 136: 61*
[Pacific Res. Inst. Mar. Fish Oceanogr., Acad. Sci., Vladivostok, USSR.]

Tramer, Elliot Jerome. AN ANALYSIS OF SPECIES DIVERSITY IN BREEDING BIRD POPULATIONS. *Ph.D. thesis, Univ. Ga.* 127 p. 1968. [From Dissertation Abstr. 29(12B, pt. 1), 1969.] *WR 136: 61*

BIRDS--ECONOMICS, CONTROL, MORTALITY

Carter, M. A. THRUSH PREDATION OF AN EXPERIMENTAL POPULATION OF THE SNAIL *CEPAEA NEMORALIS* (L.). *Proc. Linnean Soc. London* 179(2): 241-249. 1968. [From Biol. Abstr. 50(3), 1969.] *WR 136: 61*
[Portsmouth Coll. Technol., Portsmouth, England.]

Clapp, Roger B., and C. Douglas Hackman. LONGEVITY RECORD FOR A BREEDING GREAT FRIGATEBIRD. *Bird-Banding* 40(1): 47. Jan. 1969. *WR 136: 61*
[Smithsonian Inst., Washington, D.C.] The bird, recovered 15 June 1968 while incubating, was banded in August 1939.--Courtesy/ Paul A. Stewart.

Czaja, Joanna. PTAKI W REJONACH LOTNISK I METODY ICH ZWALCZANIA. [BIRDS IN THE AREA OF AIRPORTS, AND THE METHODS OF CONTROLLING THEM.] *Przegl. Zool.* 12 (1): 73-78. 1968. [From Biol. Abstr. 50(14), 1969. In Polish with English summ.] *WR 136: 62*
[Univ. Warsaw, Warsaw, Poland.]

Dunstan, Thomas C. TERN MORTALITY DUE TO ENTANGLEMENT IN NYLON MONOFILAMENT FISHLINE. *Loon* 41(2): 50-51, 2 figs. June 1969. *WR 136: 62*
[Univ. S. Dak., Vermillion.] Eight common terns and one Caspian tern were found dead and entangled in monofilament fishline.

Erdman, Donald S. SEA BIRDS IN RELATION TO GAME FISH SCHOOLS OF PUERTO RICO AND THE VIRGIN ISLANDS. *Caribbean J. Sci.* 7(1/2): 79-85. 1967. [From Biol. Abstr. 50(13), 1969.] *WR 136: 62*
[Fish & Wildl. Div., Dept. Agr. San Juan, Puerto Rico.] Based on experience in this area, the following sea birds are listed in declining order of usefulness as indicators of favorable fishing conditions: *Puffinus lherminieri, Anous stolidus, Sterna anaethetus, Sterna albifrons, Fregata magnificens, Sula leucogaster, Sula sula,* and *Pelecanus occidentalis.*--From abstr.

Hubbard, John P., and Claudia L. Hubbard. MEADOWLARKS FEEDING ON ROADKILLS. *Wilson Bull.* 81(1): 107-108. Mar. 1969. *WR 136: 62*
[Rockbridge Alum Springs Biol. Lab., Goshen, Va.] Courtesy/ Paul A. Stewart.

Mahieu, Noel, and Jean Le Gouais. LE BOUVREUIL DANS LES VERGERS DE LOIRE-ATLANTIQUE. [THE BULLFINCH IN ORCHARDS OF THE LOIRE-ATLANTIC REGION.] *Phytoma* 1968(194): 43-45. 1968. [From Biol. Abstr. 50(5), 1969. In French.] *WR 136: 62*
[Prot. Veg., Nantes, France.] Control by netting and shooting.

Pomarnacki, Leopold. ROLA DZIECIOLOW W OSIEDLANIU SSAKOW I PTAKOW. [WOODPECKERS HOLES HELP MAMMALS AND OTHER BIRDS.] *Przegl. Zool.* 11(2): 158-160, illus. 1967. [From Biol. Abstr. 50(12), 1969. In Polish with English summ.] *WR 136: 62*
[ul. Kelles Krauza 22, Radom, Poland.]

Rea, Scott C. PLASTIC DEVICE CAUSES GULL MORTALITY. *Wilson Bull.* 81(1): 105-106, 1 fig. Mar. 1969. *WR 136: 62*
[952 Riverside Dr., South Bend, Ind.] Several gulls have been found entangled in the plastic loops used to hold beverage six-packs together.--Courtesy/ Paul A. Stewart.

Royall, Willis C., Jr. TRAPPING HOUSE SPARROWS TO PROTECT EXPERIMENTAL GRAIN CROPS. *US F&WS, Wildl. Leafl.* 484. 4 p., 1 fig. May 1969. *WR 136: 62*
[Denver Wildl. Res. Center, Denver, Colo.] Modified Australian crow traps were used to capture 4,411 sparrows in 1965 and 6,779 in 1966. Grain damage was apparently reduced by the trapping.

Ziriez, Henri. NOUVELLES CONTRIBUTIONS AU DOSSIER "OISEAUX ET AGRICULTURE." [NEW CONTRIBUTIONS TO THE NOTES ON "BIRDS AND AGRICULTURE."] *Phytoma* 193: 20-25, illus. 1967. [From Biol. Abstr. 50(6), 1969. In French.] *WR 136: 62*
The means of preventing damage by birds including repulsive chemicals, devices to make loud irritating noises, silhouettes of the bird's natural enemies, physical synthetic fiber tree coverings and pesticides were studied.

BIRDS--PARASITES & DISEASES

Barus, Vlastimil. RESUMEN SOBRE LA FAUNA DE LOS NEMATODOS EN LAS AVES DEL ORDEN GALLIFORMES EN CUBA. [SUMMARY OF THE NEMATODE FAUNA OF THE GALLIFORMES OF CUBA.] *Torreia* (nueva ser.) no. 5. 19 p. 30 Dec. 1968. In Spanish. *WR 136: 62*
[Inst. Parasitol., Acad. Sci., Czechoslovakia.] Annotated list of 19 spp. of nematodes parasitizing galliform birds.

Bejosovec, J. HELMINTHENFAUNEN VON HAUSHUHN, FASAN UND REBHUHN IN DER GLEICHEN GEGEND. [HELMINTHOFAUNA OF DOMESTIC FOWL, PHEASANT, AND PARTRIDGE IN THE SAME AREA.] *Angew. Parasitol.* 9(1): 15-20, illus. 1968. [From Biol. Abstr. 50(14), 1969. In German with Russian, Czech, and English summ.] *WR 136: 63*
[Lehrstuhl Zool. Landwirschaft. Hochsch., Praha-Suchdol, Prague, Czechoslovakia.]

Bouvier, G. LA SALMONELLOSE CHEZ LES OISEAUX SAUVAGES, NOTAMMENT CHEZ LES PETITS PASSEREAUS DES ENVIRONS DE LAUSANNE. [SALMONELLA IN WILD BIRDS, ESPECIALLY SMALL PASSERINES IN THE REGION OF LAUSANNE.] *Nos Oiseaux* 29(320): 293-295. 1968. [From Bird-Banding 40(2), 1969. In French.] *WR 136: 63*
"Passer domesticus, C. chloris, Locustella naevia, Fringilla montifringilla, and *P. pyrrhula."*

Houston, C. Stuart, and Leander Tryphonas. AVIAN TUBERCULOSIS IN A SWAINSON'S THRUSH. *Bird-Banding* 40(2): 146-147. Apr. 1969. *WR 136: 63*
[863 University Drive, Saskatoon, Saskatchewan, Canada.] *"Hylocichla ustulata swainsoni."*--Courtesy/ Paul A. Stewart.

Kirmse, Peter. CNEMIDOCOPTIASIS (SCALY-LEG) IN A BUFF-THROATED SALTATOR *(SALTATOR MAXIMUS)* FROM PANAMA. *Bird-Banding* 40(1): 51-52. Jan. 1969. *WR 136: 63*
[Univ. Guelph, Guelph, Ontario, Canada.] Courtesy/ Paul A. Stewart.

McDiarmid, Mercedes Foster [=Mercedes S. Foster]. SYNCHRONIZED LIFE CYCLES IN THE ORANGE-CROWNED WARBLER AND ITS MALLOPHAGAN PARASITES. *Ecology* 50(2): 315-323, 2 figs. Early Spring 1969. *WR 136: 63*
[Univ. Calif., Berkeley.] Breeding of the mallophagans *Ricinus picturatus* and *Menacanthus* spp. coincides with the breeding of the host warbler *Vermivora celata.* No parasite eggs are laid during the winter or during the molting periods of the host. Breeding of the parasites seems to be controlled by the reproductive hormones of the host.--From summ. Courtesy/ Paul A. Stewart.

Oosthuizen, J. H., and M. B. Markus. THE HAEMATOZOA OF SOUTH AFRICAN BIRDS. II. BLOOD PARASITES OF SOME RHODESIAN BIRDS. *J. South African Vet. Med. Assoc.* 38(4): 438-440. 1967. *WR 136: 63*
[Univ. Pretoria, Pretoria, South Africa.] Based on blood smears from 73 individuals of 47 spp. of wild Rhodesian birds. [See *WR 125: 42* for 1st report.]

Oosthuizen, J. H., and M. B. Markus. THE HAEMATOZOA OF SOUTH AFRICAN BIRDS. III. THE CARMINE BEE-EATER *MEROPS NUBICOIDES* DES MURS AND PUCHERAN. *Zool. Africana* 4(1): 99-100. 1969. *WR 136: 63*
[Univ. Pretoria, Pretoria, South Africa.]

Oosthuizen, J. H., and Miles B. Markus. THE HAEMATOZOA OF SOUTH AFRICAN BIRDS. V. REPORT ON BLOOD SMEARS COLLECTED BY THE SEPTEMBER 1967 PERCY FITZPATRICK INSTITUTE EXPEDITION TO THE CHOBE. *Ostrich* 40. p. 21-22. 1969. *WR 136: 63*
[Univ. Pretoria, Pretoria, South Africa.]

GAME BIRDS--GENERAL

Bump, Gardiner, and Janet W. Bump. A STUDY OF THE SPOTTED TINAMOUS AND THE PALE SPOTTED TINAMOUS OF ARGENTINA. *US F&WS, Spec. Sci. Rept.--Wildl.* no. 120. x + 160 p., 40 figs. Apr. 1969. Available at $1.50 from Supt. Documents, U.S. Govt. Printing Office, Washington, D.C. *WR 136: 63*
Abstract: Tinamous are the principal upland game birds of South America. The spotted tinamou group *Nothura* is the most widely distributed and abundant of the tinamous resident in Argentina. It inhabits short grasslands, often rather intensively grazed and utilized but is not dependent upon adjacent

cultivation. Various species appear to be climatically adaptable to the southern and southwestern United States. This study presents in detail the characteristics, habitat and climatic requirements, life history, and propagation of the several species and subspecies of spotted and pale spotted tinamous as a means of evaluating the desirability of and potential for a successful trial introduction into the United States.

Eley Game Advisory Station. ANNUAL REVIEW 1968/69. *Eley Game Advisory Sta.* (formerly I.C.I. Game Serv.). 91 p., illus. [1969.] *WR 136: 64*
[Fordingbridge, Hampshire, England.] Notes on work with red-legged partridges, mallards, capercaillie, woodcock, pheasants, and grey partridges. Pothole blasting, disappearance of hedgerows, pheasant feeders, predator control, and game plantings are discussed; an interesting view of the American wildlife scene is included.

Kuzmina, M. A. [COMPARATIVE FEATURES OF THE FOOD OF TETRAONIDS AND PHASIANIDS IN THE USSR.] *Trudy Inst. Zool. Akad. Nauk Kazakh. SSR* 29: 76-152. 1968. [From Bird-Banding 40(2), 1969. In Russian.] *WR 136: 64*

Panchenko, S. G. [MIGRATION OF GAME BIRDS IN THE NORTHERN SEMIPALATINSK REGION.] *Trudy Inst. Zool. Akad. Nauk Kazakh. SSR* 29: 212-215. 1968. [From Bird-Banding 40(2), 1969. In Russian.] *WR 136: 64*

QUAIL

Gontier, P., and R. De Naurois. CAPTURES DE LA CAILLE ARLEQUIN *COTURNIX DELEGORGUEI* DELEGORGUE AU SENEGAL. [CAPTURES OF HARLEQUIN QUAIL *COTURNIX DELEGORGUEI* DELEGORGUE IN SENEGAL.] *Alauda* 35(4): 267-269. 1967. [From Biol. Abstr. 50(2), 1969. In French.] *WR 136: 64*

Jackson, A. S. A HANDBOOK FOR BOBWHITE QUAIL MANAGEMENT IN THE WEST TEXAS ROLLING PLAINS. *Texas Parks & Wildl. Dept. Bull.* no. 48. viii + 77 p., 51 figs. Undated. *WR 136: 64*
[Texas Parks & Wildl. Dept., Austin.] Major problems facing the quail manager include wide fluctuations in quail numbers, general lack of understanding of quail needs, and a dependence upon ineffectual techniques on the part of the public. Population turnover, bobwhite food requirements, and cover requirements are discussed in detail. Management practices for food and cover include disking, planting, and altering existing habitat.

Jensen, Leo S. SELENIUM DEFICIENCY AND IMPAIRED REPRODUCTION IN JAPANESE QUAIL. *Proc. Soc. Exptl. Biol. Med.* 128(4): 970-972, illus. 1968. [From Biol. Abstr. 50(7), 1969.] *WR 136: 64*
[Wash. State Univ., Pullman.]

Johnson, Robert A. HATCHING BEHAVIOR OF THE BOBWHITE. *Wilson Bull.* 81(1): 79-86, 2 figs. Mar. 1969. *WR 136: 64*
[R.R. 11, Box 188, Bloomington, Ind.] The behavioral characteristics of three phases of hatching are described. Delayed incubation (24 and 48 hours) tests indicate synchronization of hatching among eggs.--From summ. Courtesy/ Paul A. Stewart.

Larsson, Kent. FÖREKOMSTEN AV VAKTEL *(COTURNIX COTURNIX)* OCH KORNKNARR *(CREX CREX)* IN NÄRKE. [THE OCCURRENCE OF THE QUAIL *(COTURNIX COTURNIX)* AND THE CORNCRAKE *(CREX CREX)* IN THE PROVINCE OF NÄRKE, CENTRAL SWEDEN.] *Vår Fågelvärld* 27(2): 122-135, illus. 1968. [From Biol. Abstr. 50(11), 1969. In Swedish with English summ.] *WR 136: 64*
[Ekangsgatan 39, Orebro, Sweden.]

Porter, Richard H., and Laurence Jay Stettner. VISUAL AND AUDITORY INFLUENCES ON FOLLOWING RESPONSES OF BOBWHITE QUAIL *(COLINUS VIRGINIANUS)*. *J. Comp. Physiol. Psychol.* 66(3, pt. 1): 808-811. 1968. [From Biol. Abstr. 50(10), 1969.] *WR 136: 65*
[Wayne State Univ., Detroit, Mich.]

Robel, Robert J., Donald J. Dick, and Gary F. Krause. REGRESSION COEFFICIENTS USED TO ADJUST BOBWHITE QUAIL WHISTLE COUNT DATA. *J. Wildl. Mgmt.* 33(3): 662-668, 2 figs. July 1969. *WR 136: 65*
[Kans. State Univ., Manhattan.] Abstract: During a 3-year study of factors effecting changes in the number of bobwhite quail *(Colinus virginianus)* whistles heard by investigators, the number of calls heard during 2,684 separate 5-min whistling periods were analyzed with respect to several time and weather variables by the multiple linear regression method. Time of year, time of day, wind velocity, temperature, and relative humidity were significantly correlated to the number of quail whistles heard. Correction formulae were developed incorporating regression coefficients, time and meteorological standards. The importance of each variable is discussed.

Walker, A. I. T., Caroline H. Neill, D. E. Stevenson, and J. Robinson. THE TOXICITY OF DIELDRIN (HEOD) TO JAPANESE QUAIL *(COTURNIX COTURNIX JAPONICA)*. *Toxicol. & Appl. Pharmacol.* 15(1): 69-73. July 1969. *WR 136: 65*
["Shell" Res. Limited, Tunstall Lab., Sittingbourne, Kent, England.] Mortality and dietary intake appeared to have been only marginally affected at 10 ppm. Reproduction was slightly affected at 10 ppm, and was progressively more affected at 20, 30, and 40 ppm. Eggs still hatched with HEOD concentrations of more than 50 ppm.--From abstr.

Whitesell, J. J., and T. J. Walker. A TEST TO DETERMINE IF BOBWHITE QUAIL HUNT CRICKETS BY SOUND. *Auk* 86(2): 348-349. Apr. 1969. *WR 136: 65*
[Univ. Fla., Gainesville.] A pair of pen-reared bobwhites *(Colinus virginianus)* did not respond to songs of crickets *(Pteronemobius ambitiosus)* or tape recordings of the songs, but rather searched for food by scratching and thus found the crickets.--Courtesy/ Paul A. Stewart.

Williams, G. R. THE BREEDING BIOLOGY OF CALIFORNIA QUAIL IN NEW ZEALAND *(LOPHORTYX CALIFORNICUS)*. *New Zealand Ecol. Soc. Proc.* 14: 88-99, illus. 1967. [From Biol. Abstr. 50(1), 1969.] *WR 136: 65*
[Dept. Internal Affairs, Wellington, New Zealand.]

PHEASANTS

Labisky, Ronald F., and Gary L. Jackson. PRODUCTION AND WEIGHTS OF EGGS LAID BY YEARLING, 2-, AND 3-YEAR-OLD PHEASANTS. *J. Wildl. Mgmt.* 33(3): 718-721. July 1969. *WR 136: 65*
[Ill. Nat. Hist. Surv., Urbana.] Abstract: The egg-laying capacity of 2-year-old hen pheasants *(Phasianus colchicus)*, confined individually and fed a laying ration ad libitum, was superior to that of similarly treated yearling and 3-year-old breeders. The mean weights of eggs laid by individual hens were remarkably similar from year-to-year. Eggs laid by yearling and 2-year-old hens did not exhibit a seasonal decline in weight even though the hens incurred substantial losses in body weight during the laying season. Some potential hazards of over-exploiting the hen resource by hunting are discussed.

Madsen, Holger. SEXING DAY-OLD GAME PHEASANT CHICKS. *Danish Rev. Game Biol.* 5(7). 8 p., [6 figs.]. 1969. In English with Danish and Russian summ. *WR 136: 65*
Patterns of down in the cheek patch or eye field, complemented with some color characteristics, may be used to sex pheasant chicks younger than four weeks old.

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Price, Edward O. DIFFERENTIAL "NEOPHOBIA" OF THREE PHEASANT STRAINS AND THE EFFECT OF DOMESTICATION. *Trans. NE Sect. Wildl. Soc., 26th NE Fish & Wildl. Conf. 9-12 Feb. 1969.* p. 153-174, 13 figs. 1969. *WR 136: 66*
[N.Y. State Univ., Syracuse.] Differences in approach and avoidance behavior were found between pheasant stocks. In general, Japanese green pheasants showed the most consistent avoidance behavior. The intensity of avoidance responses by the game farm New York subjects was reduced relative to their wild counterparts. In the majority of variables, the Japanese X game farm New York hybrids resembled the Japanese parentage. These, and other results, are discussed in terms of stock differences in response patterns and thresholds.--From abstr.

Wishart, William. AGE DETERMINATION OF PHEASANTS BY MEASUREMENT OF PROXIMAL PRIMARIES. *J. Wildl. Mgmt.* 33(3): 714-717, 2 figs. July 1969. *WR 136: 66*
[Fish & Wildl. Div., Edmonton, Alberta, Canada.] Abstract: A technique is described for separating adult from juvenile ring-necked pheasants *(Phasianus colchicus)*, from measurements of the shaft diameter and total length of the first primary.

GROUSE, PARTRIDGE, ETC.

Anderson, Raymond K. PRAIRIE CHICKEN RESPONSES TO CHANGING BOOMING-GROUND COVER TYPE AND HEIGHT. *J. Wildl. Mgmt.* 33(3): 636-643, 1 fig. July 1969. *WR 136: 66*
[Wis. State Univ., Stevens Point.]

Baziev, Zh. Kh. [MIGRATIONS OF SEPARATE POPULATIONS OF THE CAUCASIAN SNOW-COCK *(TETRAOGALLUS CAUCASICUS* PALL.) AND INTERPRETATION OF THEIR ORIGIN.] *Zool. Zhur.* 47(1): 104-110, illus. 1968. [From Biol. Abstr. 50(10), 1969. In Russian with English summ.] *WR 136: 66*
[Moscow State Univ., Moscow, USSR.]

Boag, D. A., and K. M. Sumanik. CHARACTERISTICS OF DRUMMING SITES SELECTED BY RUFFED GROUSE IN ALBERTA. *J. Wildl. Mgmt.* 33(3): 621-628, 1 fig. July 1969. *WR 136: 66*
[Univ. Alberta, Edmonton, Alberta, Canada.] Abstract: Characteristics of logs and their surrounding vegetation at 80 sites from which male ruffed grouse *(Bonasa umbellus)* displayed were compared with similar characteristics of 98 sites not so used. The study was conducted in southwestern Alberta during the period 1964-1967. The comparison demonstrated that at used sites, the density of stems of young trees (shrub size) was greater than at unused sites, as was canopy coverage and frequency of one species--young white spruce *(Picea glauca)*. The canopy coverage and stem density of components of the tree layer were similar at used and unused sites; however, only at used sites was aspen *(Populus tremuloides)* the predominant species in this layer. These data suggest that selection of drumming sites by male grouse is not random but depends primarily on the nature of the surrounding vegetation. Possible reasons for selecting such sites are discussed.

Davis, Jeffrey A. AGING AND SEXING CRITERIA FOR OHIO RUFFED GROUSE. *J. Wildl. Mgmt.* 33(3): 628-636, 1 fig. July 1969. *WR 136: 66*
[Ohio Div. Wildl., New Marshfield.] Abstract: Objective means for aging and sexing ruffed grouse *(Bonasa umbellus)* were developed by taking measurements on approximately 1,900 sets of wings and tails. The examination of 114 carcasses of known age and sex support the accuracy of the criteria established. Feather measurements found employable for separating adults and immatures of either sex are, in descending order of usefulness: primary (P) 9 calamus diameter, mid-rectrix length, P9 length, mid-rectrix calamus diameter. Despite subjectiveness, P10 tip contour and primary sheathing are valuable criteria which should supplement measurements. Nearly 99% of all aged specimens can be sexed by mid-rectrix length. Criteria of secondary value in sexing are mid-rectrix calamus diameter,

P9 and P8 length, and a refinement of the tail-band method. Additional plumage characteristics found to be of little or no value for aging and sexing by the multiple-criteria technique are reported. Geographical variation in feather size limits the validity of separation points between classes to a given area.

Donaldson, D. D. EFFECTS ON LESSER PRAIRIE CHICKENS OF BRUSH CONTROL IN WESTERN OKLAHOMA. *Ph.D. thesis, Okla. State Univ.* 73 p. 1969. *WR 136: 67*
Courtesy/ James C. Lewis.

Evans, Keith E., and Douglas L. Gilbert. A METHOD FOR EVALUATING GREATER PRAIRIE CHICKENS HABITAT IN COLORADO. *J. Wildl. Mgmt.* 33(3): 643-649, 1 fig. July 1969. *WR 136: 67*
[Rocky Mountain Forest & Range Expt. Sta., S. Dak. School Mines Campus, Rapid City.] Abstract: Important habitat components associated with greater prairie chicken *(Tympanuchus cupido pinnatus)* abundance in the sandhill region of northeast Colorado include grainfields for winter food and an abundance of tall-grass species for suitable nesting cover. A form was designed to aid the game manager in systematically assigning a numerical value to individual habitat components. In aggregate, these individual ratings indicate the potential value of a specific range for greater prairie chickens. Separately, they indicate habitat components that are lacking or inadequate and need improving.

Evans, Roger M. TERRITORIAL STABILITY IN SHARP-TAILED GROUSE. *Wilson Bull.* 81(1): 75-78, 1 fig. Mar. 1969. *WR 136: 67*
[Univ. Manitoba, Winnipeg, Manitoba, Canada.] Five of ten banded male sharp-tailed grouse *(Pediocoetes phasianellus)* returned to the same lek the following spring and fall.--Courtesy/ Paul A. Stewart.

Godfrey, Geoffrey A., and William H. Marshall. BROOD BREAK-UP AND DISPERSAL OF RUFFED GROUSE. *J. Wildl. Mgmt.* 33(3): 609-620, 3 figs. July 1969. *WR 136: 67*
[Univ. Minn., St. Paul.] Abstract: Dispersal of juvenile ruffed grouse *(Bonasa umbellus)* from three broods during the fall of 1964 was studied with radio-telemetry techniques. Results indicate two components to this activity: brood break-up followed by distinct dispersal movement. The break-up period began around 7 September. The individual members of two autonomous broods separated from each other, yet remained near or in their summer brood ranges. Break-up ranges covered by 4 males and 4 females averaged 13.4 and 7.7 acres, respectively. Females displayed a greater affinity for lowlands and adjacent edges, as opposed to upland types, than did the males. Non-sibling congregations of grouse occasionally occurred. On 24 September, 17 days after brood break-up, three grouse began dispersal movements within 5 hours of one another. Activities of five radio-marked grouse during the dispersal period are described, two of them in detail. Photoperiod is suggested as the likely control over the behavior, the trigger for actual egress possibly being an entering weather front. A second dispersal move occurred on 7 October, when two grouse again moved a considerable distance. Climatological conditions were almost identical to those of 24 September. Dispersal movement was observed to be highly unidirectional and rapid. Each emigration from one area to another took place in 4 days of travel time or less. Although extensive open habitat was avoided, all other canopied habitat was quickly traversed. The straight line distances of dispersal averaged 1.85 miles, with a maximum of 3.34 miles for a female. Maximum movement of 5,709 ft per day was recorded, but daily movement averaged 3,019 ft per day. Population figures indicate that this fall shuffle of grouse is independent of population densities. Further, "crazy flight" behavior is explained as the probable manifestation of typical dispersal activity and not symptomatic of some abnormal condition.

Groh, G., and H. Wissing. WINTERBEOBACHTUNG VON HASELHÜHNERN *TETRASTES BONASIA.* [WINTER OBSERVATIONS OF *TETRASTES BONASIA.*] *Emberiza* 1(3): 104. 1966. [From Biol. Abstr. 50(5), 1969. In German.] *WR 136: 67*
[Amalienstrasse 12, Neustade/Weinstrasse, Germany.]

Klebenow, Donald A. SAGE GROUSE NESTING AND BROOD HABITAT IN IDAHO. *J. Wildl. Mgmt.* 33(3): 649-662, 4 figs. July 1969. *WR 136: 68*
[Texas Technol. Coll., Lubbock.] Abstract: Threetip sagebrush *(Artemisia tripartita)* and big sagebrush *(A. tridentata)* were the dominant species of shrubs on the sage grouse *(Centrocercus urophasianus)* study area in southeastern Idaho. Ninety-one percent of the nests were associated with threetip sagebrush, a greater association than with any other species. Conversely, 83% of the broods were on sites containing big sagebrush. In the nesting habitat, threetip sagebrush was short--8 inches average--and grouse preferred to nest under the taller plants. Bitterbrush *(Purshia tridentata)* was a taller species they sometimes used. No nests were found where shrub cover was greater than 35%. Only three of 98 broods were discovered in areas with greater than 31% shrubby cover. The most dense stands of sagebrush were not used, probably because few or none of the forbs the young grouse fed upon were present. As the summer progressed, broods moved up in elevation following a gradient of green food plants. A stepwise discriminant function analysis was made of the data, in an unsuccessful attempt to develop a means of discriminating between nesting vs. non-nesting areas, and brood vs. non-brood habitat. The analyses only pointed out the most significant variables.

Kramer, Helmut. ZUM VORKOMMEN DES HASELHUHNS *TETRASTES BONASIA* IN DER EIFEL. [*TETRASTES BONASIA* IN EIFEL.] *Emberiza* 1(3): 76-78. 1968. [From Biol. Abstr. 50(5), 1969. In German.] *WR 136: 68*
[Rheinweg 75, Bonn, Germany.]

Kruijt, J. P., and Jerry A. Hogan. SOCIAL BEHAVIOR ON THE LEK IN BLACK GROUSE *LYRURUS TETRIX TETRIX* (L.). *Ardea* 55(3/4): 203-220, illus. 1967. [From Biol. Abstr. 50(9), 1969. In English with Dutch summ.] *WR 136: 68*
[Zool. Lab., Rijksuniv., Groningen, Netherlands.]

Loyttyniemi, Kari. TERI *(LYRURUS TETRIX* L.*)* MANNYN TAIMIEN TUHOLISEMA TAIMITARHASSA. [ON EATING OF TERMINAL SHOOTS OF PINE SEEDLINGS BY THE BLACK GROUSE *(LYRURUS TETRIX* L.*)* IN A NURSERY.] *Silva Fenn.* 2(4): 264-266, illus. 1968. [From Biol. Abstr. 50(11), 1969. In Finnish with English summ.] *WR 136: 68*

Palmer, Walter L. TIME FREQUENCY BETWEEN SUCCESSIVE DRUMMING PERFORMANCES OF RUFFED GROUSE. *Wilson Bull.* 81(1): 97-99, 1 fig. Mar. 1969. *WR 136: 68*
[Mich. Dept. Conserv., Route 1, East Lansing.] The mean interval between drumming performances of *Bonasa umbellus* was 4.05 minutes.--Courtesy/ Paul A. Stewart.

Pulliainen, Erkki. AUTUMN WEIGHT OF THE PARTRIDGE *(PERDIX PERDIX* L.*)* IN FINLAND. *Ann. Zool. Fenn.* 5(3): 241-244, illus. 1968. [From Biol. Abstr. 50 (12), 1969.] *WR 136: 68*
[Univ. Helsinki, Helsinki, Finland.]

Pulliainen, Erkki. BREEDING SUCCESS OF A PARTRIDGE *(PERDIX PERDIX* L.*)*, POPULATION IN OSTROBOTHNIA, WEST FINLAND, IN 1967. *Ann. Zool. Fenn.* 5(2): 183-187. 1968. [From Biol. Abstr. 50(1), 1969.] *WR 136: 68*
[Univ. Helsinki, Helsinki, Finland.]

Staude, Johannes. UNTERSUCHUNGEN ÜBER DIE HEUTIGE VERBREITUNG DES HASELHUHNES *TETRASTES BONASIA* IN RHEINLAND-PFALZ: I. REG. BEZ. MONTOBAUR. [INVESTIGATIONS ON THE PRESENT DISTRIBUTION OF *TETRASTES BONASIA* IN THE RHINELAND. PALATINATE: I. DISTRICT MONTABAUR.] *Emberiza* 1(3): 72-75. 1966. [From Biol. Abstr. 50(5), 1969. In German.] *WR 136: 68*

Stott, Richard S., and R. B. Brander. SURVIVAL OF RUFFED GROUSE EGGS AFTER 24-HOUR ABANDONMENT. *Auk* 86(2): 357. Apr. 1969. *WR 136: 68*
[Univ. Mass., Amherst.]

Tomek, Wlodzimierz. JARZABEK, *TETRASTES BONASIA* (L.) NA POGORZU CIEZKOWICKIM. [HAZELHEN *TETRASTES BONASIA* (L.) IN CIEZKOWICE HIGHLANDS, SOUTHERN POLAND (ECOLOGY, BEHAVIOR).] *Przegl. Zool.* 9(4): 395-404. 1965. [From Biol. Abstr. 50(15), 1969. In Polish with English summ.] *WR 136: 69*
[Ciezkowice Kolo, Tarnowa, Poland.]

Weeden, Robert B. FOODS OF ROCK AND WILLOW PTARMIGAN IN CENTRAL ALASKA WITH COMMENTS ON INTERSPECIFIC COMPETITION. *Auk* 86(2): 271-281, 1 fig. Apr. 1969. *WR 136: 69*
[Alaska Dept. Fish & Game, Fairbanks.] During the period from early fall to mid spring rock ptarmigans *(Lagopus mutus)* eat chiefly the buds and catkins of dwarf birch *(Betula nana* and *B. glanduloea)*. The summer diet is chiefly leaves, blossoms, later berries, and seeds. Animal matter is eaten opportunistically. Diet of the willow ptarmigan *(L. lagopus)* is more varied than that of the rock ptarmigan and in the winter consists chiefly of buds and twigs of various species of willow.--From summ. Courtesy/ Paul A. Stewart.

TURKEY

Crockett, B. C. QUANTITATIVE EVALUATION OF WINTER ROOSTING SITES OF THE RIO GRANDE TURKEY IN NORTHCENTRAL OKLAHOMA. *M.S. thesis, Okla. State Univ.* 45 p. 1969. *WR 136: 69*
Courtesy/ James C. Lewis.

McGuire, R. D. AGING RIO GRANDE WILD TURKEY POULTS *MELEAGRIS GALLOPAVO INTERMEDIA* (SENNETT) BY PRIMARY FEATHER LENGTH AND GENERAL BODY CHARACTERISTICS. *M.S. thesis, Okla. State Univ.* 54 p. 1969. *WR 136: 69*
Courtesy/ James C. Lewis.

DOVES & PIGEONS

Blankenship, Lytle H., Roy E. Tomlinson, and Roland C. Kufeld. ARIZONA DOVE WING SURVEY, 1964. *US F&WS, Spec. Sci. Rept.--Wildl.* no. 116. vi + 34 p., 3 figs. June 1967. *WR 136: 69*
Abstract: The first large-scale effort to collect dove wings by mail was made in 1964, in Arizona. Each of 2,356 dove hunters was sent 10 wing envelopes with instructions for recording data and handling wings. A total of 992 hunters submitted 22,362 wings in 2,349 envelopes, including wings from 17,666 mourning doves *(Zenaidura macroura)* and 4,696 white-winged doves *(Zenaida asiatica)*. The survey yielded information on (1) age ratios in the Arizona dove harvest; (2) the chronologic and geographic distribution of the kill within the State; and (3) the feasibility of using a wing survey to obtain reliable age ratios and kill data. The weighted kill for Arizona was 676,974 mourning doves and 182,711 white-winged doves. The young:adult age ratio in the kill of mourning doves was 0.83:1, which was abnormally low. Correction for differential vulnerability by use of banding data raised the ratio to 1.80:1. This low age ratio probably resulted from migration of immatures to little-hunted areas before the September hunting season. The age ratio in the kill of white-winged doves was 1.78:1. Most hunters hunted within their county of residence. Hunter numbers and dove kill were related closely to both human and dove populations.

Chewinski, Wojciech. ROZPRZESTRZENIANIE SIE SIERPOWKI, *STREPTOPELIA DECAOCTO* (FRIV.) W KALISZU W LATACH 1964-1966. [SPREADING OF THE COLLARED TURTLE DOVE *STREPTOPELIA DECAOCTO* FRIV. IN KALISZ (POLAND) IN 1964-1966.] *Przegl. Zool.* 11 (4): 428-430. 1967. [From Biol. Abstr. 50(12), 1969. In Polish with English summ.] *WR 136: 69*
[ul B. Prusagli, Kalisz, Poland.]

Graczyk, Ryszard, and Wojciech Chewinski. ROZMIESZCZENIE I LICZEBNOSC SIERPOWKI *STREPTOPELIA DECAOCTO* (FRIV.) W POZNANIU W LATACH 1964-1965. [DISTRIBUTION AND NUMBER OF COLLARED TURTLE DOVES *STREPTOPELIA DECAOCTO* (FRIV.) IN POZNAN IN 1964-1965.] *Przegl. Zool.* 10(3): 318-324, illus. 1966. [From Biol. Abstr. 50(13), 1969. In Polish with English summ.] *WR 136: 70*

Ljunggren, Lars. SEASONAL STUDIES OF WOOD PIGEON POPULATIONS. II. GONADS, CROP GLANDS, ADRENALS AND THE HYPOTHALAMO-HYPOPHYSIAL SYSTEM. *Viltrevy* 6(2): 41-126, 25 figs. Apr. 1969. In English with Swedish summ. *WR 136: 70*
[Univ. Lund, Lund, Sweden.] Comparison of urban and rural populations. *"Columba palumbus."*

Stranger, R. H. A STUDY OF HOMING PERFORMANCE IN THE SENEGAL DOVE. *Western Australian Nat.* 11(1): 4-14, illus. 1968. [From Biol. Abstr. 50(15), 1969.] *WR 136: 70*
[West Perth, Western Australia.] *"Streptopelia senegalensis."*

WATERFOWL

Anderson, Bertin W., and Dwain W. Warner. A MORPHOLOGICAL ANALYSIS OF A LARGE SAMPLE OF LESSER SCAUP AND RING-NECKED DUCKS. *Bird-Banding* 40(2): 85-94. Apr. 1969. *WR 136: 70*
[Univ. S. Dak., Vermillion.] Courtesy/ Paul A. Stewart.

Bartonek, James C. BUILD-UP OF GRIT IN THREE POCHARD SPECIES IN MANITOBA. *Wilson Bull.* 81(1): 96-97. Mar. 1969. *WR 136: 70*
[Bur. Sport Fisheries & Wildl., Jamestown, N. Dak.] *"Aythya valisineria, A. americana,* and *A. affinis."*--Courtesy/ Paul A. Stewart.

Bartonek, James C., Joseph J. Hickey, and Lloyd B. Keith. AN EVALUATION OF WATERFOWL REGULATIONS AND LOCAL HARVEST IN WISCONSIN. *Trans. Wis. Acad. Sci. Arts & Letters* 53. p. 83-107. 1964. [From Biol. Abstr. 50(7), 1969.] *WR 136: 70*

Bauer, Robert V. LOW COST HYDROPONICS UNIT. *Modern Game Breeding* 5(10): 18, 24, 3 figs. Aug. 1969. *WR 136: 70*
An incubator may be used to grow trays of oats and other greens for waterfowl.

Benson, Denis A. WATERFOWL HARVEST AND HUNTER ACTIVITY IN CANADA DURING THE 1968-69 HUNTING SEASON. *Progress Notes, Canadian Wildl. Serv.* no. 10. 44 p. July 1969. In English and French. *WR 136: 70*
[Canadian Wildl. Serv., 400 Laurier Ave. West, Ottawa, Ontario, Canada.] Results of the migratory game bird harvest survey for 1968-69 are tabulated for each of the provinces. Number of hunters, season bag of ducks, man-days of recreation, harvest of waterfowl by province, and distribution of sample are given.

Benson, Dirck. RELEASING HAND-REARED REDHEADS TO ESTABLISH BREEDING COLONIES IN NEW YORK. *Trans. NE Sect. Wildl. Soc., 26th NE Fish & Wildl. Conf. 9-12 Feb. 1969.* p. 91-110, 6 figs. 1969. *WR 136: 70*
[N.Y. Conserv. Dept., Delmar.] Abstract: In 1952, redhead eggs were obtained from the Delta Waterfowl Research Station, Manitoba. Fifty young, hatched from these eggs, were released at five-weeks of age and appear to have established a nesting colony. The remaining young were held for breeding stock on the state game farms. From this stock 1,972 ducklings and 1,911 adults were released between 1957 and 1963. Adults and ducklings were stocked in many habitats, but only one colony was established. Some stock returned in spring but did not persist. Band recoveries and retrap records suggest the migration, longevity, and homing of these redheads.

Bianki, V. V., T. D. Gerasimova, and V. N. Karpovich. PRESENT STATE OF NESTING GROUNDS OF THE COMMON EIDER IN THE NORTHERN EUROPEAN PART OF THE U.S.S.R. *Problems of the North* (11): 269-274, [1 fig.]. June 1968. *WR 136: 71*
Transl. of Problemy Severa (11): 218-223. 1967. [See Belkov, *WR 136: 8*, as to availability of this translation from the Russian.]

Bjärvall, Anders. UNUSUAL CASES OF RE-NESTING MALLARDS. *Wilson Bull.* 81(1): 94-96. Mar. 1969. *WR 136: 71*
[Univ. Stockholm, Stockholm, Sweden.] Reports two cases of mallards *(Anas platyrhynchos)* laying second clutches after successfully hatching first clutches. --Courtesy/ Paul A. Stewart.

Canadian Wildlife Service. LAND CAPABILITY FOR WILDLIFE--WATERFOWL. *Canada Land Inventory, A.R.D.A.* Paperbound 7-color multifold maps. Available from the Queen's Printer, Ottawa. Price 35¢ each. 1969. *WR 136: 71*
Land areas are color-classified into seven capability classes, according to potential limitations to the production of waterfowl. Four maps, scale 1:250,000, have been made available in the regions of Amherst and Shelburne, Nova Scotia; Whitecourt, Alberta; and Cap-Chat, Quebec.

Cheltsov-Bebutov, A. M., and A. K. Koshkina. [ARE TERRITORIAL ATTACHMENTS OF RIVER DUCKS PERSISTENT?] *Ornitologiya* 9: 13-26. 1968. [From Bird-Banding 40 (2), 1969. In Russian.] *WR 136: 71*

Fog, Jørgen. STUDIER OVER BLISHØNEN *(FULICA ATRA)* I VEJLERNE OG DANSKE YNGLEFUGLES TRAEKFORHOLD. [STUDIES ON THE COOT *(FULICA ATRA)* IN THE MARSHLAND VEJLERNE, NORTH JUTLAND, AND ON THE MIGRATION OF DANISH BREEDING POPULATIONS.] *Dansk Ornithol. Foren. Tidsskr.* 63: 1-18, 4 figs. 1969. In Danish with French and English summ. *WR 136: 71*
Populations, molt, capture techniques and analyses of banding results at Vejlerne and other parts of Denmark for *Fulica atra.*

Folkestad, Ottar. RINGAND, *AYTHYA COLLARIS*--NY ART FOR NORGE. [THE RING-NECKED DUCK, *AYTHYA COLLARIS*, FOUND IN NORWAY.] *Sterna* 7(8): 345-352, illus. 1967. [From Biol. Abstr. 50(12), 1969. In Norwegian with English summ.] *WR 136: 71*

Fredrikson, K. A. TECKEN PA BOPARASITISM HOS VIGGEN *(AYTHYA FULIGULA)* INOM ETT BEGRANSAT FJARDOMRADE I ABOLANDS SKARGARD. [OBSERVATIONS ON PARASITIC NESTING IN THE TUFTED DUCK *(AYTHYA FULIGULA).*] *Ornis Fenn.* 45(4): 127-130. 1968. [From Biol. Abstr. 50(16), 1969. In Swedish.] *WR 136: 71*
[Tandsticksvagen, Turku, Finland.]

García-Montaña, Floréntino, and O. H. Garrido. PATOS QUE ANIDAN EN CUBA (AVES--ANATIDAE). [DUCKS WHICH NEST IN CUBA (AVES: ANATIDAE).] *Acad. Cienc. Cuba Mus. Felipe Poey Trab. Divulgación* 60: 1-8, illus. 1967. [From Biol. Abstr. 50(2), 1969. In Spanish.] *WR 136: 71*
"Aix sponsa, Anas bahamensis, Oxyura jamaicensis, and *O. dominica."*

Golet, Francis Charles. GROWTH OF MUCK-HARDWOODS IN A NEW YORK WATERFOWL IMPOUNDMENT. *M.S. thesis, Cornell Univ.* ix + 70 p., 7 figs. Sept. 1969. *WR 136: 71*
Spring flooding (from mid-March until late June) caused earlier-than-normal radial increases in red ash and swamp white oak at the start of the growing season. Fall flooding (from early September until mid-November) had no noticeable effect on seasonal growth patterns. Increment cores taken in March, 1969, demonstrated that spring flooding significantly increased the annual radial growth of all species for the first three years; growth was normal for all species in the fourth year. Three years of fall flooding resulted in significantly lower annual growth for red ash in 1968 and noticeably lower growth for red maple in the same year. Red ash seedlings responded favorably to both flooding regimes while other seedling species showed no response.--From abstr.

Golet, Frank C., and Daniel Q. Thompson. GROWTH AND SURVIVAL OF TIMBER IN A WATERFOWL IMPOUNDMENT. *Trans. NE Sect. Wildl. Soc., 26th NE Fish & Wildl. Conf. 9-12 Feb. 1969.* p. 111-121, 4 figs. 1969. *WR 136: 72*

[N.Y. Coop. Wildl. Res. Unit, Ithaca.] Abstract: Since 1965, investigators have studied the growth and survival of swamp white oak, red maple, and red ash in a green-timber waterfowl impoundment at the Montezuma National Wildlife Refuge in central New York. Radial growth has been studied with dial-gauge dendrometers. Shallow flooding in fall or spring did not seem to have any marked effect on the onset or cessation of growth of trees in the experimental pools; furthermore, flooding has had no noticeable effect on the amount and rate of radial growth. In the spring-flooded pool, swamp white oak trees showed virtually no change in mean annual radial growth after four years of seasonal flooding. After two years of fall-flooding in another area, swamp white oak still shows no substantial change in annual increment.

Grenquist, Pekka. [CHANGES IN ABUNDANCE OF SOME DUCK AND SEA-BIRD POPULATIONS OFF THE COAST OF FINLAND 1949-1963.] *Riistatieteellisia Julkaisuja* 27: 7-114, illus. 1965. [From Biol. Abstr. 50(4), 1969. In (Finnish) with English summ.] *WR 136: 72*

[State Game Res. Inst., Helsinki, Finland.]

Guignion, Daryl. CLUTCH SIZE AND INCUBATION OF THE AMERICAN EIDER *(SOMATERIA MOLLISSIMA DRESSERI)* ON BRANDYPOT ISLAND. *Nat. Canadien* 95(5): 1145-1152. 1968. [From Biol. Abstr. 50(15), 1969. In English with French summ.] *WR 136: 72*

[Univ. Laval, Quebec, Quebec, Canada.]

Gyllin, Roger, and Kent Larsson. FÖREKOMSTEN AV GRÅSAND *(ANAS PLATYRHYNCHOS)* I ÖREBRO 1959-1961. [THE MALLARD *(ANAS PLATYRHYNCHOS)* IN THE TOWN OF ÖREBRO, 1959-1961.] *Fauna & Flora* 62(2/3): 100-118, illus. 1967. [From Biol. Abstr. 50(10), 1969. In Swedish with English summ.] *WR 136: 72*

Hansen, Lindhard. TAFFELANDENS *(AYTHYA FERINA)* NUVAERENDE UDBREDELSE SOM YNGLEFUGL I DANMARK. [THE PRESENT BREEDING DISTRIBUTION OF THE POCHARD *(AYTHYA FERINA)* IN DENMARK.] *Dansk Ornithol. Foren. Tidsskr.* 61(3/4): 138-142, illus. 1968. [From Biol. Abstr. 50(11), 1969. In Danish with English summ.] *WR 136: 72*

Harrison, J. M., and others. THE W.A.G.B.I.--WILDFOWL TRUST EXPERIMENTAL RESERVE--THE FIRST ELEVEN YEARS. *18th Ann. Rept. Wildfowl Trust 1965-66.* p. 43-63, 2 figs. 1967. *WR 136: 72*

Includes the following papers: *Development of the wildfowl population,* J. M. Harrison, J. G. Harrison, and A. Meikle; *The feeding ecology of local mallard and other wildfowl,* P. J. S. Olney; *An appraisal of the planting programme, 1959-66,* D. F. W. Pollard; and *Expenditure for habitat improvement,* A. Meikle.

Harrison, Jeffery. THE ALTITUDE OF A MIGRATING SHOVELER. *Bull. British Ornithol. Club* 89(3): 72. June 1969. *WR 136: 72*

Anas clypeata at 13,000 ft.

Hudec, Karel. MIGRATION OF THE CZECHOSLOVAK POPULATIONS OF THE DIVING DUCKS *(AYTHYA, NETTA AND BUCEPHALA).* *Zool. Listy* 17(1): 49-62, illus. 1968. [From Biol. Abstr. 50(2), 1969.] *WR 136: 72*

[Inst. Vertebrate Zool., Czechoslovak Acad. Sci., Brno, Czechoslovakia.]

Isakov, Yu. A. [THE RESULTS OF A MIDWINTER WATERFOWL CENSUS IN USSR (JANUARY, 1967).] *Bull. Moscow Obshch. Ispit. Prirody (Biol.)* 73(4): 92-114. 1968. [From Bird-Banding 40(1), 1969. In Russian with English summ.] *WR 136: 72*

All major wintering grounds in the USSR were surveyed simultaneously.

Jenni, Donald A. DIVING TIMES OF THE LEAST GREBE AND MASKED DUCK. *Auk* 86 (2): 355-356. Apr. 1969. *WR 136: 72*

[Univ. Mont., Missoula.] The average diving time of *Oxyura dominica* was almost twice that of *Podiceps dominicus.*--Courtesy/ Paul A. Stewart.

Johnsgard, Paul A., and Janet Kear. A REVIEW OF PARENTAL CARRYING OF YOUNG BY WATERFOWL. *Living Bird* 7: 89-102, illus. 1968. [From Biol. Abstr. 50(6), 1969.] *WR 136: 73*
[Univ. Nebr., Lincoln.]

Kitchen, David W., and George S. Hunt. BROOD HABITAT OF THE HOODED MERGANSER. *J. Wildl. Mgmt.* 33(3): 605-609. July 1969. *WR 136: 73*
[Univ. Mich., Ann Arbor.] Abstract: Twenty-one broods of hooded mergansers *(Lophodytes cucullatus)* in northern Wisconsin were studied from May 1, 1967, to August 14, 1967, to determine the habitat types preferred by broods. Our results and an extensive literature review indicate that rivers and streams are an important component of the hooded merganser's brood habitat. Specifically, in Wisconsin, rivers with high levels of food resources, fast current velocities (0.80-0.93 ft/second), wide (40-60 ft), and moderately deep (1-2 ft) channels, with cobbled bottoms, and heavy surrounding cover of mixed hardwoods were used most by merganser broods.

Leys, H. N., and J. J. F. E. De Wilde. NESTPLAATSKEUZE EN NESTMATERIAAL BIJ FUTEN. [NEST SITES AND NESTING MATERIAL OF THE GREBE.] *De Levende Nat.* 71: 265-272, 7 figs. 1968. In Dutch with English summ. *WR 136: 73*
Phragmites, Typha and *Scirpa* ranked high as building materials in the 758 nests of great crested grebe *(Podiceps cristatus)* examined.

Maley, Michael J. ELECTRICAL STIMULATION OF AGONISTIC BEHAVIOR IN THE MALLARD. *Behaviour* 34(3): 138-160, 2 figs. 1969. In English with German summ. *WR 136: 73*
[Duke Univ., Durham, N.C.] Electrical stimulation of the brain of unanesthetized, freely moving adult mallard ducks *(Anas platyrhynchos)* produced response patterns characteristic of the aggressive and escape behaviors of this species. Aggressive reactions were classified into three categories: (a) directed attacks on a companion; (b) defensive threat display automatisms characteristic of a cornered bird but lacking attack behaviors; and (c) the rabrab and inciting vocalizations associated with aggressive encounters but unaccompanied by other responses associated with attack or escape. Five categories of fear-like reactions were distinguished: (a) sneak-into-cover reactions characterized by attempts to hide under objects and a strong preference for shelter; (b) crouch-flat reactions in which the birds would stretch out flat on the floor or surface of the water; (c) directed escape reactions characterized by a variety of response topographies but all oriented toward the window or shelter; (d) undirected escape reactions characterized by rushing or flying responses but lacking orientation; and (e) alarm vocalizations unaccompanied by other fear-like responses.--From summ.

Morse, Thomas E., Joel L. Jakabosky, and Vernon P. McCrow. SOME ASPECTS OF THE BREEDING BIOLOGY OF THE HOODED MERGANSER. *J. Wildl. Mgmt.* 33(3): 596-604, 6 figs. July 1969. *WR 136: 73*
[Utah State Univ., Logan.] Abstract: The breeding biology of the hooded merganser *(Lophodytes cucullatus)* was studied in Benton County, Oregon during 1965-1968. Fifty-five nests were investigated; of these, 44 were successful and produced 423 young. Nest initiation usually began in late February. The majority of the nests were started during March. No nests were initiated after April. Hens nesting on the study area in previous years nested earlier and had larger clutches than those hens nesting on the area for the first time. Sexual maturity of the female is believed to be deferred until after the second spring of life. The egg-deposition rate was roughly one egg every 48 hours, with birds laying during all daylight hours. Down deposition was associated with termination of egg laying and indicated the onset of incubation. The incubation period ranged from 29-37 days, with a mode of 33 days. Nest site selection was oriented to those nest boxes adjacent to water.

Nilsson, Leif. KNIPANS VINTERUTBREDNING, FLYTTNING OCH KÖNSKVOT I SVERIGE. [THE WINTER DISTRIBUTION, MIGRATION AND SEX RATIO OF THE GOLDENEYE *(BUCEPHALA CLANGULA)* IN SWEDEN.] *Fauna & Flora* 63(2/3): 75-99. 1967. [From Biol. Abstr. 50(10), 1969. In Swedish with English summ.] *WR 136: 73*

Nilsson, Leif. SEASONAL FLUCTUATIONS IN NUMBERS OF SWEDISH WINTER DUCKS. (REPORT NO. 3 OF THE WILDFOWL COUNTS IN SWEDEN). *Vår Fågelvärld* 27(2): 142-171, illus. 1968. [From Biol. Abstr. 50(4), 1969.] *WR 136: 74*
[Zool. Inst., Lund, Sweden.]

Oppenheim, Ronald W. COLOR PREFERENCES IN THE PECKING RESPONSE OF THE NEWLY HATCHED DUCKS *(ANAS PLATYRHYNCHOS)*. *J. Comp. Physiol. Psychol.* 66(3, pt. 2): 1-17, illus. 1968. [From Biol. Abstr. 50(11), 1969.] *WR 136: 74*
[N.C. Dept. Mental Health, Raleigh.]

Oring, Lewis W. SUMMER BIOLOGY OF THE GADWALL AT DELTA, MANITOBA. *Wilson Bull.* 81(1): 44-54, 1 fig. Mar. 1969. *WR 136: 74*
[Univ. N. Dak., Grand Forks.] Nest initiation, nest sites, egg laying, clutch size, incubation period, hatching, nest predation, nest desertion, pair dissolution, post breeding activities, and gonad size of *Anas strepera*.--Courtesy/ Paul A. Stewart.

Prince, Harold H., P. B. Siegel, and George W. Cornwell. INCUBATION ENVIRONMENT AND THE DEVELOPMENT OF MALLARD EMBRYOS. *J. Wildl. Mgmt.* 33(3): 589-595, 3 figs. July 1969. *WR 136: 74*
[Mich. State Univ., East Lansing.] Abstract: The influence of temperature and humidity on the embryonic development of the mallard *(Anas platyrhynchos)* was evaluated at 6, 12, and 18 days of incubation. There was, between 35.6 and 39.4 C, a linear increase in embryonic wet weights and a curvilinear increase in length of toe, wing, and beak. Although increasing temperature reduced the length of incubation, temperature had no influence on duckling weights. Humidity (35-85%) had less effect on development than temperature. There was a negative linear relationship between humidity and embryo weight at 6 days of incubation. Embryos at 35% humidity were largest at 12 days of incubation, but there was no difference between 60 and 85% treatments. There was no difference among humidity levels for 18-day embryonic weight. The pattern for toe, wing, and beak length was comparable to that for body weight. Although there was no difference in duckling weight among humidities, the length of incubation was reduced at lower humidity. Embryonic mortality was greatest at low humidity, extreme temperature treatments, and during early and late incubation. Egg-weight loss was linear over time for both temperature and humidity.

Rollo, Joe D., and Eric G. Bolen. ECOLOGICAL RELATIONSHIPS OF BLUE AND GREEN-WINGED TEAL ON THE HIGH PLAINS OF TEXAS IN EARLY FALL. *Southwestern Nat.* 14(2): 171-188, 2 figs. 10 Oct. 1969. *WR 136: 74*
[Texas Technol. Univ., Lubbock.] Abstract: An ecological appraisal of blue-winged and green-winged teal in the early fall months was conducted on the playa lake environments of the Southern High Plains in Lubbock County, Texas. The study coincided with the second year of an experimental teal hunting season. Food habits of teal from both modified and natural playa lakes were compared to determine preferences. This information coupled with census data, indicated that teal are better maintained on the natural playas where smartweeds and other important food plants may be easily selected. Hunters shot an average of 5 teal during the 9-day experimental season. Cultural practices aimed at modifying playa basins for agricultural uses apparently reduce carrying capacities for waterfowl.

Sage, Bryan L. A NORTHERN PINTAIL X CHILOE WIGEON HYBRID. *Bull. British Ornithol. Club* 89(3): 69-71, illus. June 1969. *WR 136: 74*
"Anas a. acuta and *A. sibilatrix."*

Shevareva, T. P. [GEOGRAPHIC POPULATIONS OF THE MALLARD IN THE USSR.] *Ornitologiya* 9: 249-269. 1968. [From Bird-Banding 40(2), 1969. In Russian.] *WR 136: 74*
Nine distinct mallard populations are recognized, based on 3,014 banding returns.

Siegfried, W. R. THE BLACK DUCK IN THE SOUTH-WESTERN CAPE. *Ostrich* 39(2): 61-75. 1968. [From Biol. Abstr. 50(6), 1969.] *WR 136: 75*
[Univ. Cape Town, Cape Town, South Africa.] *"Anas sparsa sparsa."*

Storer, Robert W. THE BEHAVIOR OF THE HORNED GREBE IN SPRING. *Condor* 71(2): 180-205, 8 figs. Apr. 1969. *WR 136: 75*
[Univ. Mich., Ann Arbor.] The behavior of the horned grebe *(Podiceps auritus)* on the breeding grounds prior to egg-laying is described and compared with that of seven related species.--Courtesy/ Paul A. Stewart.

SWANS & GEESE

Hosgstrom, Stig, and Lars-Erik Wiss. MINDRE SANGSVANENS *(CYGNUS COLUMBIANUS BEWICKII* YARRELL*)* FORE-KOMST I SVERIGE JAMTE NAGOT OM ARTENS STRACK OSTERS-JOOMRADET. [BEWICK'S SWAN *(CYGNUS COLUMBIANUS BEWICKII* YARRELL*)* IN SWEDEN AND SOMETHING ABOUT ITS MIGRATION IN THE BALTIC AREA.] *Vår Fågelvärld* 27(1): 14-42, illus. 1968. [From Biol. Abstr. 50(9), 1969. In Swedish with English summ.] *WR 136: 75*
[Neptunsgatan 21, Uppsala, Sweden.]

Jensen, Freddy. KNOPSVANEN *(CYGNUS OLOR)* SOM YNGLEFUGL VED BOGNAES. [THE MUTE SWAN *(CYGNUS OLOR)* BREEDING AT BOGNAES.] *Dansk Ornithol. Foren. Tidsskr.* 61(3/4): 143-150, illus. 1968. [From Biol. Abstr. 50(4), 1969. In Danish with English summ.] *WR 136: 75*

Krechmar, A. V., and V. V. Leonovich. DISTRIBUTION AND BIOLOGY OF THE RED-BREASTED GOOSE DURING THE NESTING PERIOD. *Problems of the North* (11): 283-289, [1 fig.]. June 1968. *WR 136: 75*
[Zool. Inst., Acad. Sci. USSR.] Transl. of Problemy Severa (11): 229-234. 1967. [See Belkov, *WR 136: 8*, as to availability of this translation from the Russian.]

Lebret, T. VEEL EERSTEJAARS KOLGANZEN *(ANSER ALBIFRONS)* KRIJGEN 'S WINTERS AL EEN WITTE KOL. [MANY WHITE-FRONTED GEESE GET THE WHITE FRONT PATCH DURING THEIR FIRST WINTER.] *Limosa* 41(3-4): 85-89, 1 fig. 1968. In Dutch with English summ. *WR 136: 75*

Ryder, John P. NESTING COLONIES OF ROSS' GOOSE. *Auk* 86(2): 282-292, 2 figs. Apr. 1969. *WR 136: 75*
[Univ. Saskatchewan, Saskatoon, Canada.] In a survey of the Canadian Arctic in 1965, 20 nesting colonies of *Chen rossii* were found. The breeding population was estimated at 30,037 birds.--Courtesy/ Paul A. Stewart.

Uspenskii, S. M. SNOW GOOSE IN THE SOVIET ARCTIC / POSSIBILITIES OF RESTORING THE POPULATION OF SNOW GEESE AND UTILIZING THEM FOR ECONOMIC PURPOSES. *Problems of the North* (11): 275-281. June 1968. *WR 136: 75*
[Moscow State Univ., Moscow, USSR.] Transl. of Problemy Severa (11): 224-228. 1967. [See Belkov, *WR 136: 8*, as to availability of this translation from the Russian.]

Uspenskii, S. M., and Yu. I. Kishko. WINTER RANGE OF THE RED-BREASTED GOOSE IN EASTERN AZERBAIDZHAN. *Problems of the North* (11): 291-301, 2 figs. June 1968. *WR 136: 75*
[Moscow State Univ., Moscow, USSR.] Transl. of Problemy Severa (11): 235-243. 1967. [See Belkov, *WR 136: 8*, as to availability of this translation from the Russian.]

CRANES, RAILS, SHOREBIRDS

Bengtson, Sven-Axel. BREEDING BEHAVIOR OF THE GRAY PHALAROPE IN WEST SPITSBERGEN. *Vår Fågelvärld* 27(1): 1-13, illus. 1968. [From Biol. Abstr. 50 (11), 1969. In English with Swedish summ.] *WR 136: 76*
[Zool. Inst., Lund, Sweden.]

Bergman, Goran. ÜBER DIE SCHWANKUNGEN DER HERBSTZUGZEIT DES KRANICHS, *GRUS GRUS* (L.), IN SUDFINNLAND. [VARIATIONS OF THE MIGRATION OF *GRUS GRUS* IN SOUTHERN FINLAND DURING FALL.] *Mem. Soc. Fauna Flora Fenn.* 41: 7-12, illus. 1964/1965. [From Biol. Abstr. 50(9), 1969. In German.] *WR 136: 76*

Boecker, Maximilian. ZUR TAGESAKTIVITÄT DER SEESCHWALBEN. [ON THE DAILY ACTIVITY OF TERNS.] *J. Ornithol.* 109(1): 62-66, illus. 1968. [From Biol. Abstr. 50(10), 1969. In German with English summ.] *WR 136: 76*
"Common and arctic terns."

Bongiorno, Salvatore F., and Jeff Swinebroad. INCREASE IN HERRING GULL COLONY IN CAPE MAY, NEW JERSEY. *Wilson Bull.* 81(1): 99-100, 1 fig. Mar. 1969. *WR 136: 76*
[Rutgers Univ., New Brunswick, N.J.] Adjacent nesting colonies of herring and laughing gulls are not in direct competition for food or nest sites, but storm tides and a slightly smaller clutch size tend to be selective against the marsh-nesting laughing gulls.--Courtesy/ Paul A. Stewart.

Conway, William G., and Joseph Bell. OBSERVATIONS ON THE BEHAVIOR OF KITTLITZ'S SANDPLOVERS AT THE NEW YORK ZOOLOGICAL PARK. *Living Bird* 7: 57-70, illus. 1968. [From Biol. Abstr. 50(6), 1969.] *WR 136: 76*
[N.Y. Zool. Soc., Bronx Park, N.Y.]

Davis, Malcolm. SIBERIAN CRANE LONGEVITY. *Auk* 86(2): 347. Apr. 1969. *WR 136: 76*
[Natl. Wildl. Federation, Washington, D.C.] A *Grus leucogeranus* lived in captivity for 61 years.--Courtesy/ Paul A. Stewart.

Dickerman, Robert W., and Kenneth C. Parkes. JUVENAL PLUMAGE OF THE SPOTTED RAIL *(RALLUS MACULATUS)*. *Wilson Bull.* 81(2): 207-209, 2 figs. June 1969. *WR 136: 76*
[Cornell Univ. Med. Coll., New York, N.Y.] Illustration of three subspecies. --Courtesy/ Paul A. Stewart.

Emeis, Walther. DIE ERGEBNISSE DER STORCHSTATISTIK IN SCHLESWIG-HOLSTEIN BIS ZUM JAHRE 1965. [RESULTS OF STORK-STATISTICS IN SCHLESWIG-HOLSTEIN UP TO 1965.] *Schr. Naturwiss. Ver. Schleswig-Holstein* 37: 46-52. 1967. [From Biol. Abstr. 50(10), 1969. In German.] *WR 136: 76*
[Heinr.-Schuldt-Strasse 10, Flensburg, Germany.]

Goudy, William H., Robert C. Kletzly, and Joseph C. Rieffenberger. CHARACTERISTICS ASSOCIATED WITH "RESIDENT" WOODCOCK POPULATIONS IN THE CANAAN VALLEY OF WEST VIRGINIA. *Trans. NE Sect. Wildl. Soc., 26th NE Fish & Wildl. Conf. 9-12 Feb. 1969.* p. 123-139, 3 figs. 1969. *WR 136: 76*
[W. Va. Game & Fish Div., Elkins.] Summary: Major points resulting from the Canaan Valley woodcock study were: (1) Annual "resident" (summer) populations appeared to be relatively stable and approximated 1,300 woodcock, of which 52% were immatures. (2) At least 30% of all woodcock deaths each year were due to hunting; immatures were more likely to be shot than adults, with immature males substantially more vulnerable than adult males. (3) Mortality estimates, based on existing band recovery data, indicated a 75% mortality rate for the entire population; adult males had the lowest rate of any age or sex group. (4) Annual mortality rates were much greater than would be expected from the observed production rates and the relatively stable "resident" population estimates.

Harrison, Jeffery. ISABELLINE CURLEWS AND TURNSTONE IN EIRE. *Bull. British Ornithol. Club* 89(3): 74-76, illus. June 1969. *WR 136: 77*
Albinism in *Numenius arquata arquata* and *Arenaria interpres*.

Haverschmidt, F. THE MIGRATION OF THE AMERICAN GOLDEN PLOVER THROUGH SURINAM. *Wilson Bull.* 81(2): 210-211. June 1969. *WR 136: 77*
[Wolfskuilstraat 16, Ommen, Holland.] Golden plovers make occasional stops on islands or mainland during migration.--Courtesy/ Paul A. Stewart.

Holmbring, Jan-Ake, and Harold Kjedemar. STROMSTAREN *(CINCLUS CINCLUS)* I ÖSTERGÖTLAND. [THE DIPPER *(CINCLUS C. CINCLUS)* IN THE PROVINCE OF ÖSTERGÖTLAND, SWEDEN.] *Vår Fågelvärld* 27(2): 97-121, illus. 1968. [From Biol. Abstr. 50 (11), 1969. In Swedish with English summ.] *WR 136: 77*
[Fankolsstigen 3, Linkoping, Sweden.]

Houston, C. Stuart, and Edmund F. Martinez. ONE WEEK FLIGHT OF A LEAST SANDPIPER. *Bird-Banding* 40(2): 146. Apr. 1969. *WR 136: 77*
[863 University Drive, Saskatoon, Saskatchewan, Canada.] The bird was mist-netted 930 miles southeast of the initial banding location seven days after banding.--Courtesy/ Paul A. Stewart.

Ingolfsson, Agnar. BEHAVIOUR OF GULLS ROBBING EIDERS. *Bird Study* 16(1): 45-52. Mar. 1969. *WR 136: 77*
[Southeastern Mass. Tech. Inst., North Dartmouth.] *Larus hyperboreus* defend rafts of eiders, or portions of large rafts, against all other conspecific adults.--From summ.

Jehl, Joseph R., Jr. BAND WEAR IN STILT SANDPIPERS--A WARNING. *Bird-Banding* 40(1): 47. Jan. 1969. *WR 136: 77*
[P.O. Box 1390, San Diego, Calif.] Presumably because stilt sandpipers *(Micropalama himantopus)* feed in sewage-filled ponds, deterioration of aluminum bands worn by these birds is rapid. Anodized bands should be used.--Courtesy/ Paul A. Stewart.

Kroymann, Burkhard. DER DURCHZUG DER SCHNEPFEN *(GALLINAGO, LYMNOCRYPTES, SCOLOPAX)* IM KREIS TUBINGEN. [MIGRATION OF SNIPES *(GALLINAGO, LYMNOCRYPTES, SCOLOPAX)* IN THE DISTRICT OF TUBINGEN.] *Vogelwelt* 89(3): 81-101, illus. 1968. [From Biol. Abstr. 50(11), 1969. In German with English summ.] *WR 136: 77*
[Holderlinstr. 1 Ug., Stuttgart, Germany.]

Lobachev, Yu. S., and V. I. Kapitonov. [ECOLOGY OF THE HORNED LARK *(EREMOPHILA ALPESTRIS ALBIGULA* BP.) IN THE KARZHANTAU MOUNTAINS (WESTERN TIEN-SHAN MOUNTAINS).] *Bull. Moscow Obshch. Iepit. Prirody (Biol.)* 73(3): 17-25, illus. 1968. [From Biol. Abstr. 50(10), 1969. In Russian with English summ.] *WR 136: 77*

Meanley, Brooke. NATURAL HISTORY OF THE KING RAIL. *N. Am. Fauna* no. 67. viii + 108 p., 37 figs. May 1969. Available from Supt. Documents at 60¢. *WR 136: 77*
[Patuxent Wildl. Res. Center, Laurel, Md.] History and systematic position, distribution and migration, ecological relations, description, breeding biology, development and behavior of captive rails, foods, feeding behavior, mortality factors, methods of hunting, methods of capturing for banding, and local names of *Rallus elegans* are discussed in this monograph.

Norton-Griffiths, M. THE ORGANISATION, CONTROL AND DEVELOPMENT OF PARENTAL FEEDING IN THE OYSTERCATCHER *(HAEMATOPUS OSTRALEGUS)*. *Behaviour* 34(1-2): 55-114, 16 figs. 1969. In English with German summ. *WR 136: 77*
[Oxford Univ., Oxford, England.] Both non-breeding and breeding birds show the same cyclical pattern of total feeding activities and it is suggested that self-feeding and parental feeding are part of the same motivational system. Once the food has been presented to the young, the subsequent behavior of the parent is dependent upon the speed with which the young seizes and eats the food.--From summ.

Pashby, B. S., and J. Cudworth. THE FULMAR "WRECK" OF 1962. *British Birds* 62(3): 97-109 + 1 pl. Mar. 1969. *WR 136: 78*
[408 Cottingham Rd., Hull, Yorkshire, England.] Great numbers of fulmars in the western North Atlantic were unable to obtain food because of weather conditions Jan.-Feb. 1962. They were blown into the North Sea, where many died through long-term starvation.--From summ.

Pettersson, Henning. STUDIER OVER MORKULLSTRACKET 1961. [STUDIES ON WOODCOCK FLIGHT IN 1961.] *Zool. Revy* 30(1): 13-17, illus. 1968. [From Biol. Abstr. 50 (7), 1969. In Swedish with English summ.] *WR 136: 78*
"Scolopax rusticola."

Recher, Harry F., and Judy A. Recher. SOME ASPECTS OF THE ECOLOGY OF MIGRANT SHOREBIRDS. II. AGGRESSION. *Wilson Bull.* 81(2): 140-154, 3 figs. June 1969. *WR 136: 78*
[Australian Mus., Sydney, Australia.] Aggressive interactions frequently occur between foraging individual shorebirds during migration and on the wintering grounds. Population density and the patchiness of available food appear to determine the frequency of aggressive interactions.--Courtesy/ Paul A. Stewart.

Reed, Charles A., and Thomas E. Lovejoy. THE MIGRATION OF THE WHITE STORK IN EGYPT AND ADJACENT AREAS. *Condor* 71(2): 146-154, 1 fig. Apr. 1969. *WR 136: 78*
[Univ. Ill., Chicago.] Distribution, flight, inability to fly in wind, food and water during migration, fatalities during migration, population estimates, and time of migrations for *Ciconia ciconia*.--Courtesy/ Paul A. Stewart.

Scott, R. E., and P. J. Grant. UNCOMPLETED MOULT IN STERNA TERNS AND THE PROBLEM OF IDENTIFICATION. *British Birds* 62(3): 93-97 + 1 pl. Mar. 1969. *WR 136: 78*
[Dungeness Bird Observatory, Romney Marsh, Kent, England.] Three *Sterna hirundo* were observed in plumages equivalent to the *"portlandica"* phase of *S. paradisaea*.

Sibley, Fred C., and Robert W. McFarlane. GULLS IN THE CENTRAL PACIFIC. *Pacific Sci.* 22(3): 314-321. 1968. [From Biol. Abstr. 50(5), 1969.] *WR 136: 78*
[Bur. Sport Fisheries & Wildl., Ojai, Calif.]

Slade, G. N. WOODCOCK BANDING. *Inland Bird Banding News* 41(3): 86-89. May-June 1969. *WR 136: 78*
[Dellwood, White Bear Lake, Minn.] Woodcocks may be captured by nightlighting, mist netting, trapping, or by locating young with a well-trained dog.--Courtesy/ Paul A. Stewart.

Stout, John F., Carl R. Wilcox, and Lynn E. Creitz. AGGRESSIVE COMMUNICATION BY *LARUS GLAUCESCENS*. PART I. SOUND COMMUNICATION. *Behaviour* 34(1-2): 29-41, [1] fig. + 2 pls. 1969. In English with German summ. *WR 136: 78*
[Walla Walla Coll., College Place, Wash.] The communicative functions of sound production during aggressive activity were studied by playing back the choking, trumpeting, mew, alarm and yelp calls to *Larus glaucescens* reacting aggressively to a mirror placed within its territory or by measuring the latency of attack on a stuffed model mounted in one of the display postures involved in aggressive activity. Differences between the experimental period with sound playback, and the control period with no sound playback were analyzed statistically by means of paired comparisons t-tests.--From summ.

Stout, John F., and Melvin E. Brass. AGGRESSIVE COMMUNICATION BY *LARUS GLAUCESCENS*. PART II. VISUAL COMMUNICATION. *Behaviour* 34(1-2): 42-54, 4 figs. 1969. In English with German summ. *WR 136: 78*
[Walla Walla Coll., College Place, Wash.] The head and neck positions of *L. glaucescens* release aggressive display in territorial behavior. A higher head level portrayed lower level of aggressiveness, whereas a lower head level portrayed greater level of aggressiveness and inhibited attack.--From summ.

Temple, Stanley A. A CASE OF TURKEY VULTURE PIRACY ON GREAT BLUE HERONS. *Wilson Bull.* 81(1): 94. Mar. 1969. *WR 136: 79*

[Cornell Univ., Ithaca, N.Y.] The vulture would alight on the heron nest, beat the young herons with wings and beak, and then collect the mass of regurgitated food to feed its own young.--Courtesy/ Paul A. Stewart.

Tuck, Leslie M. SOME ASPECTS OF THE BIOLOGY OF THE COMMON SNIPE. *Trans. NE Seat. Wildl. Soc., 26th NE Fish & Wildl. Conf. 9-12 Feb. 1969.* p. 141-151, 5 figs. 1969. *WR 136: 79*

[Canadian Wildl. Serv., St. John's, Newfoundland, Canada.] Abstract: Juvenal common snipe undergo partial moults in the late summer and again in the winter. The retention of juvenal feathers in the median and lesser upper-wing coverts can distinguish the first age class in the fall and winter. Most adult birds can be sexed by the length of the outer tail-feathers. There are differences in the helminth loads in summering and wintering birds. Most food studies have not taken into account that snipe regurgitate pellets 5-6 hours after feeding and that plant fibres, seeds, and grit, are taken extraneously. Banding has indicated that snipe rewinter in the same localities and that the various populations have discrete migration routes. Thus Newfoundland snipe winter in the West Indies and Venezuela while those from northern Ontario winter mostly in Florida. Suggestions for attracting snipe in fall and winter are given.

Vermeer, Kees. EGG MEASUREMENTS OF CALIFORNIA AND RING-BILLED GULL EGGS AT MIQUELON LAKE, ALBERTA, IN 1965. *Wilson Bull.* 81(1): 102-103. Mar. 1969. *WR 136: 79*

[10015 - 103 Ave., Edmonton, Alberta, Canada.] The third egg of the clutch is smaller on the average than the first two eggs laid.--Courtesy/ Paul A. Stewart.

HAWKS & OWLS

Andersen, Gerhard. 'SOMMERIAGTTAGELSE AF KONGEORN *(AQUILA CHRYSAËTUS).* [SUMMER OBSERVATIONS OF AN EAGLE *(AQUILA CHRYSAËTUS).*] *Dansk Ornithol. Foren. Tidsskr.* 61(3/4): 187. 1968. [From Biol. Abstr. 50(2), 1969. In Danish with English summ.] *WR 136: 79*

Bezzel, Einhard. ERGEBNISSE QUANTITATIVER GREIFVOGELBEOBACHTUNGEN IN OBERBAYERN. [QUANTITATIVE RESULTS OF PREDATORY BIRD OBSERVATIONS IN UPPER BAVARIA.] *Ornithol. Mitteil.* 21(2): 29-36, [6] figs. Feb. 1969. In German with English summ. *WR 136: 79*

[Gsteigstrasse 43, Garmisch-Partenkirchen, Germany.]

Boev, N., and S. Simeonov. ÜBER DIE VERBREITUNG EINIGE EULEN-ARTEN IN SÜDOST-EUROPA. [ON THE DISTRIBUTION OF SOME OWL SPECIES IN SOUTHEASTERN EUROPE.] *Acta Mus. Macedonici Sci. Nat.* 11(1): 1-15. 1967. [From Biol. Abstr. 50(14), 1969. In German with Macedonian summ.] *WR 136: 79*

[Zool. Inst. Bulgarian Acad. Sci., Sofia, Bulgaria.]

Bogucki, Zdzislaw. O POKARMIE PUSZCZYKA *(STRIX ALUCO* L.) GNIEZDZACEGO SIE W SRODMIESCIU POZNANIA. [ON THE FOOD OF THE TAWNY OWL *(STRIX ALUCO* L.) NESTING IN THE CITY OF POZNAN (POLAND).] *Przegl. Zool.* 11(1): 71-74. 1967. [From Biol. Abstr. 50(10), 1969. In Polish with English summ.] *WR 136: 79*

Doerksen, George Peter. AN ANALYSIS OF BARN OWL PELLETS FROM PITT MEADOWS, BRITISH COLUMBIA. *Murrelet* 50(1): 4-8. Jan.-Apr. 1969. *WR 136: 79*

Zapus, Rattus, Sorex, and *Scapanus* spp. were present in the pellets. The number of animals per pellet varied from 1-10, with an average of 3.3. The average number of pellets deposited per day was 1.8.

Fischer, Wolfgang. DER WANDERFALK *(FALCO PEREGRINUS* UND *F. PELEGRINOIDES).* [THE PEREGRINE FALCON *(FALCO PEREGRINUS* AND *F. PELEGRINOIDES).*] *A. Ziemsen Verlag.* 150 p., 61 figs., 1 color plate. 1967. In German. *WR 136: 80*
Foreign names, molt, distribution, population dynamics, breeding biology, regulatory factors of population, intra-specific behavior, migration, predation and feeding, falconry, and protection of the peregrine falcon.

Grahan, Henning. NOTERINGAR VID RINGMARKNING AV PARLUGGLA VAREN 1967. [NOTES ON BANDING OF TENGMALM'S OWLS IN SPRING 1967.] *Vår Fågelvärld* 27(1): 87-89. 1968. [From Biol. Abstr. 50(11), 1969. In Swedish with English summ.] *WR 136: 80*

Grey, Willard. SHARP-SHINNED HAWK PREYS ON CARDINAL. *Ky. Warbler* 45(2): 41-42. May 1969. *WR 136: 80*
[Rt. #4, Carlisle, Ky.]

Henny, Charles J., and Howard M. Wight. AN ENDANGERED OSPREY POPULATION: ESTIMATES OF MORTALITY AND PRODUCTION. *Auk* 86(2): 188-198, 1 fig. Apr. 1969. *WR 136: 80*
[Oreg. State Univ., Corvallis.] Each breeding-age female in the population must produce between 0.95 and 1.30 young per year to maintain a stable population. The present calculated rate of 0.27 fledgling per nesting female is considerably below that figure.--Courtesy/ Paul A. Stewart.

Hesselbjerg, Christensen, and N. O. Preuss. NOGLE IAGTTAGELSER AF STOR OG LILLE SKRIGEORN *(AQUILA CLANGA* OG *A. POMARINA).* [SPOTTED AND LESSER-SPOTTED EAGLE *(AQUILA CLANGA* AND *A. POMARINA)* IN DENMARK 1966.] *Dansk Ornithol. Foren. Tidsskr.* 61(3/4): 183-185. 1968. [From Biol. Abstr. 50(2), 1969. In Danish with English summ.] *WR 136: 80*

Kelley, Alice, and Neil Kelley. PORCUPINE QUILLS FOUND IN FOOT OF SHARP-SHINNED HAWK. *Wilson Bull.* 81(2): 209-210. June 1969. *WR 136: 80*
[3681 Forest Hill Dr., Bloomfield Hills, Mich.] The adult hawk was caught in a mist net.--Courtesy/ Paul A. Stewart.

Klaas, Carl. LEBENSSTAETTE UND BEUTEAUSWAHL DREIER HABICHTSPAARE. [LIVING SPACE AND SELECTION OF PREY OF THREE HAWK COUPLES *(ACCIPITER GENTILIS, MILVUS MILVUS).*] *Natur Mus.* 97(9): 347-353, illus. 1967. [From Biol. Abstr. 50(5), 1969. In German.] *WR 136: 80*
[Natur-Mus. and Forsch.-Inst. Senckenberg, Frankfort/Main, Germany.]

Koehler, Amélie. UEBER DIE FORTPFLANZUNG EINIGER GREIFVOGELARTEN IN GEFANGENSCHAFT. [THE BREEDING OF SOME RAPTORS IN CAPTIVITY.] *Der Falkner* 18: 28-33. 1968. [From Bird-Banding 40(2), 1969. In German.] *WR 136: 80*
"Falco sparverius."

Kulczycki, Antoni. PRZYCZYNEK DOZNAJOMOSCI POKARMUS SOWY BLOTNEJ, *ASIO FLAMMEUS FLAMMEUS* (PONTOP., 1763). [CONTRIBUTION TO THE KNOWLEDGE OF NOURISHMENT OF SHORT-EARED OWL, *ASIO FLAMMEUS FLAMMEUS* (PONTOP., 1763).] *Przegl. Zool.* 10(2): 218-220. 1966. [From Biol. Abstr. 50(16), 1969. In Polish with English summ.] *WR 136: 80*

Locke, Louis N., George E. Bagley, Donald N. Frickie, and Larry T. Young. LEAD POISONING AND ASPERGILLOSIS IN AN ANDEAN CONDOR. *J. Am. Vet. Med. Assoc.* 155(7): 1052-1056, 3 figs. Oct. 1969. *WR 136: 80*
[Patuxent Wildl. Res. Center, Laurel, Md.] Summary: Necropsy of an adult male Andean condor revealed extensive lesions of aspergillosis. On histologic examination, acid-fast intranuclear inclusion bodies were found in the cells of kidney tubules. Liver samples contained 38 p.p.m. lead.

Looft, V. BESTAND UND ÖKOLOGIE DER GREIFE IN SCHLESWIG-HOLSTEIN: ZUSAMMENGESTELLT NACH UNTERSUCHUNGEN IM JAHRE 1967. [POPULATION AND ECOLOGY OF THE BIRDS OF PREY IN SCHLESWIG-HOLSTEIN (GERMANY): CLASSIFIED ACCORDING TO INVESTIGATIONS IN 1967.] *J. Ornithol.* 109(2): 206-220, illus. 1968. [From Biol. Abstr. 50 (13), 1969. In German with English summ.] *WR 136: 81*
[Alter Garten 4, Schleswig, Germany.]

Marti, Carl D. SOME COMPARISONS OF THE FEEDING ECOLOGY OF FOUR OWLS IN NORTH-CENTRAL COLORADO. *Southwestern Nat.* 14(2): 163-170. 10 Oct. 1969. *WR 136: 81*
[Colo. State Univ., Fort Collins.] Abstract: Four species of owls (great horned owl, *Bubo virginianus*; long eared owl, *Asio otus*; burrowing owl, *Speotyto cunicularia*; and barn owl, *Tyto alba*) which inhabit the same grassland habitats in northcentral Colorado were investigated to determine differences and similarities in feeding ecology. Considerable overlap in prey species was found in the four owls. However, the average estimated prey weight was significantly different for each owl species. Differences in activity periods, foraging methods and predator-prey size relationships may all function in reducing interspecific competition among these owls.

Mosanský, Aristid. MEDZIDRUHOVÉ VZŤAHY *FALCO PEREGRINUS* TUNSTALL A *FALCO CHERRUG* GRAY. [INTERSPECIES RELATION OF THE MIGRATORY HAWK *FALCO PEREGRINUS* TUNSTALL AND THE KILLER HAWK *FALCO CHERRUG* GRAY.] *Biológia* (Bratislava) 23(5): 351-356, illus. 1968. [From Biol. Abstr. 50(13), 1969. With German and Russian summ.] *WR 136: 81*
[Východoslovenského Múz., Košiciach, Czechoslovakia.]

Olendorff, Richard R., editor. THE JOURNAL OF THE NORTH AMERICAN FALCONERS' ASSOCIATION VOLUME VII. *N. Am. Falconers' Assoc.* 116 p., illus. 1968. *WR 136: 81*
[Aggie Village 7-D, Fort Collins, Colo.] A collection of articles contributed by falconers from the United States and several foreign countries. The papers are arranged under several general headings: quarry (ducks, grouse, pheasant, quail, partridge, magpie, jackrabbits, and cottontails), diseases (aspergillosis, tuberculosis, visceral gout, and capillariasis), captivity breeding (peregrine and prairie falcons), gyrfalcon voyages, equipment, and accounts of individual birds. Much useful information as far as handling and managing the birds is included.

Rukovskii, N. N., and A. G. Kupriyanov. [PINE MARTEN *(MARTES MARTES* L.) AS A PREY OF THE GOLDEN EAGLE *(AQUILA CHRYSAETUS* L.).] *Zool. Zhur.* 47(3): 476. 1968. [From Biol. Abstr. 50(9), 1969. In Russian with English summ.] *WR 136: 81*
[V. I. Lenin Moscow State Pedagog. Inst., Moscow, USSR.]

Saint Girons, Marie-Charlotte. ANALYSES DES FLUCTUATIONS DU REGIME DE L'EFFRAIE, *TYTO ALBA*, DANS LE DEPARTEMENT DE LA SOMME (NORD DE LA FRANCE) PENDANT UNE PULLULATION DE *MICROTUS ARVALIS*. [ANALYSIS OF FLUCTUATIONS IN THE DIET OF THE BARN OWL, *TYTO ALBA*, IN THE DEPARTMENT OF SOMME (NORTHERN FRANCE) DURING POPULATION OUTBREAKS OF *MICROTUS ARVALIS*.] *Vestnik Cesk. Spolecnosti Zool.* 32 (2): 185-198, illus. 1968. [From Biol. Abstr. 50(6), 1969. In French.] *WR 136: 81*
[Mus. Natl. Hist. Nat., Brunoy, France.]

Seidensticker, John C. IV, and Harry V. Reynolds III. PRELIMINARY STUDIES ON THE USE OF A GENERAL ANESTHETIC IN FALCONIFORM BIRDS. *J. Am. Vet. Med. Assoc.* 155(7): 1044-1045. Oct. 1969. *WR 136: 81*
[Idaho Coop. Wildl. Res. Unit, Moscow.] Summary and conclusions: A preparation containing pentobarbital sodium, magnesium sulfate, and chloral hydrate was tested and found to be satisfactory for anesthetizing prairie falcons, red-tailed hawks, Swainson's hawks, marsh hawks, and golden eagles.

Siegfried, J. M. BREEDING SEASON, CLUTCH AND BROOD SIZES IN VERREAUX'S EAGLE. *Ostrich* 39(2): 139-149. 1968. [From Biol. Abstr. 50(6), 1969.] *WR 136: 82*
[Univ. Cape Town, Cape Town, South Africa.] *"Aquila verreauxi."*

Sindelar, Charles R. BARRED OWL FEEDS ON CROW. *Wilson Bull.* 81(1): 100-101. Mar. 1969. *WR 136: 82*
[1865 S. West Ave., Apt. 5, Waukesha, Wis.] Courtesy/ Paul A. Stewart.

Stewart, Paul A. NON-HOMING BY INCUBATING SCREECH OWL RELEASED FOUR MILES FROM ITS NEST. *Bird-Banding* 40(2): 146. Apr. 1969. *WR 136: 82*
[USDA, Entomol. Res. Div., Oxford, N.C.]

Stewart, Paul A. MOVEMENTS, POPULATION FLUCTUATIONS, AND MORTALITY AMONG GREAT HORNED OWLS. *Wilson Bull.* 81(2): 155-162, 1 fig. June 1969. *WR 136: 82*
[USDA, Entomol. Res. Div., Oxford, N.C.] Some great horned owls *(Bubo virginianus)* dispersed in all directions in the fall and winter, but most remained at their hatching and breeding places throughout the year. Movement was confined to young birds. First year mortality of young birds was 46%; mean annual mortality after the first year was 31%. The oldest bird was 13-14 years of age. No major fluctuations, cyclic or otherwise, occurred in the great horned owl population during 1949-65.--From auth. abstr.

Syvertsen, Kare. OBSERVASJONER AV ROVFUGL OG UGLER FRA HØVÅG, LILLESAND, 1960-65. [OBSERVATIONS OF BIRDS OF PREY AND OWLS IN HØVÅG, LILLESAND (NORWAY), 1960-1965.] *Sterna* 7(6): 271-277, illus. 1967. [From Biol. Abstr. 50(15), 1969. In Norwegian.] *WR 136: 82*

Voous, K. H. DISTRIBUTION AND GEOGRAPHICAL VARIATION OF THE WHITE-TAILED HAWK *(BUTEO ALBICAUDATUS)*. *Beaufortia* 15(208): 195-208. 1968. [From Biol. Abstr. 50(6), 1969.] *WR 136: 82*
[Univ. Amsterdam, Amsterdam, Netherlands.]

BLACKBIRDS, STARLINGS, CROWS

De Haven, Richard W., and Joseph L. Guarino. A NEST-BOX TRAP FOR STARLINGS. *Bird-Banding* 40(1): 48-50, 2 figs. Jan. 1969. *WR 136: 82*
[Denver Wildl. Res. Center, Denver, Colo.] A modified mousetrap snaps over the entrance hole when a bird enters the nestbox and lands on the treadle.--Courtesy/ Paul A. Stewart.

Folk, Cestmir. DIE POSTNATALE ENTWICKLUNG DER DOHLE *(CORVUS MONEDULA)* IN NATURLICHEN BEDINGUNGEN. [POSTNATAL DEVELOPMENT OF THE JACKDAW *(CORVUS MONEDULA)* UNDER NATURAL CONDITIONS.] *Zool. Listy* 16(4): 379-393, illus. 1967. [From Biol. Abstr. 50(12), 1969. In German.] *WR 136: 82*
[Inst. Wirbeltierforsch., Tschech. Akad. Wiss., Brno, Czechoslovakia.]

Keil, Werner. ELEKTROAKUSTISCHE ABWEHR VON STARSCHÄDEN IM KIRSCHENANBAU. [ELECTRO-ACOUSTIC DEFENSE AGAINST STARLING DAMAGE IN CHERRY ORCHARDS.] *Erwerbsobstbau* 11(1): 5-7, 4 figs. 1969. In German. *WR 136: 82*
[Steinauer Strasse 44, Frankfurt/M.-Fechenheim, Germany.]

Langowski, David J., Howard M. Wight, and John N. Jacobson. RESPONSES OF INSTRUMENTALLY CONDITIONED STARLINGS TO AVERSIVE ACOUSTIC STIMULI. *J. Wildl. Mgmt.* 33(3): 669-677, 11 figs. July 1969. *WR 136: 82*
[Oreg. State Univ., Corvallis.] Abstract: Comparative data for responses of instrumentally conditioned starlings *(Sturnus vulgaris)* to pure tone and distress cry stimuli are presented. A direct relationship was obtained between score (a measure of the repellency) and intensity of pure tone at 1,000 cps. This relationship was also obtained when a recorded starling distress cry was used as a stimulus. Juvenile birds had lower scores (were less affected) than

adults for both stimuli at all levels of intensity tested. Different frequencies of pure tone, from 1,000 to 7,500 cps had similar repellent effects on the birds. Increasing the duration of distress cries from 2 to 95 seconds, resulted in no significant changes in repellency scores. When the cry was played continuously the birds required less time to habituate; hence, presenting a stimulus for short periods may be more effective as a repellent. The average score of a distress-cry test was approximately 11 times greater than a pure tone trial at the same decibel level.

Pivar, Gojko. [THE BIOLOGICAL ECONOMICAL SIGNIFICANCE OF SEED CROW *(CORVUS FRUGILEGUS FRUGILEGUS* L.*)* FOR CROP GROWING IN EASTERN SLAVONIA (YUGOSLAVIA). *Larus* 16/18: 159-280, illus. 1962/1964. [From Biol. Abstr. 50(3), 1969. In Serbo-Croatian with German summ.] *WR 136: 83*

Pomarnacki, Leopold. ZLOTY I ZIMOWISKA SZPAKOW W KIELECCZYZNIE. [MEETINGS AND WINTERING OF STARLINGS IN KIELCE VOIVODESHIP (POLAND).] *Przegl. Zool.* 11 (3): 335-337, illus. 1967. [From Biol. Abstr. 50(13), 1969. In Polish with English summ.] *WR 136: 83*
[ul. Kelles Krauza, Radom, Poland.]

Ridsdale, Robert, and Philip Granett. RESPONSES OF CAGED GRACKLES TO CHEMICALLY TREATED AND UNTREATED FOODS. *J. Wildl. Mgmt.* 33(3): 678-681. July 1969. *WR 136: 83*
[Rutgers Univ., New Brunswick, N.J.] Abstract: Some preferences of the common grackle *(Quiscalus quiscula)* were determined for certain treated as opposed to non-treated food items which might be utilized in a control program. Given free choice of five foods, caged grackles ate significantly more poultry pellets than oats, chick scratch, cracked corn, or soybeans. Undyed cracked corn and cracked corn artificially dyed yellow were preferred to cracked corn dyed blue, red, or green. Untreated poultry pellets were eaten more readily than similarly exposed baits containing a reproductive suppressant, triethylenemelamine (TEM). Untreated cracked corn was eaten in preference to baits containing the toxicant DRC-1339, 3-chloro-p-toluidine hydrochloride.

Rowley, Ian. SYMPATRY IN AUSTRALIAN RAVENS. *Proc. Ecol. Soc. Australia* 2: 107-115, 2 figs. 1967. *WR 136: 83*
[CSIRO Div. Wildl. Res., Canberra, Australia.] Summary: *Corvus coronoides* and *C. mellori* breed in sympatry on the southern plains of New South Wales. An intensive study has shown several ways in which differences of behaviour reduce interspecific competition. The two species differ in the following: size and function of their territories, which overlap; foraging; calling; courtship; the choice of nest-sites; the timing of the breeding season; the duration of the nestling period; and the nomadic movements of both adults and immatures.

Rowley, Ian. THE ABC OF CROW CATCHING. *Australian Bird Bander* 6(3): 47-55. 1968. [From Bird-Banding 40(2), 1969.] *WR 136: 83*

Russell, Dennis Neil. NESTING AND FEEDING HABITS OF THE STARLING IN EASTERN TEXAS. *M.S. thesis, Stephen F. Austin State Univ.* 59 p. 1969. *WR 136: 83*
Courtesy/ Edwin D. Michael.

Schafer, E. W., R. R. West, and D. J. Cunningham. NEW STARLING TOXICANT: DRC-1347. *Pest Control* 37(9): 22, 24, 28, 30. Sept. 1969. *WR 136: 83*
[Bur. Sport Fisheries & Wildl., Federal Center, Denver, Colo.] Abstract: DRC-1347 (3-chloro-*p*-toluidine) has proved to be an effective contact toxicant for starlings *(Sturnus vulgaris)*. Its low mammalian toxicity and apparent absence of secondary hazards to mammalian and avian predators indicate that it may be an excellent replacement for avian contact toxicants now in use that are more hazardous. Several field trials have been conducted with good results.

Shadowen, Herbert E. THE DIET OF THE STARLING. *Ky. Warbler* 45(2): 27-28. May 1969. *WR 136: 84*
[Western Ky. Univ., Bowling Green.] Occurrence of arthropods in 226 stomachs is tabulated.

Turcek, Frantisek J., and Leon Kelso. ECOLOGICAL ASPECTS OF FOOD TRANSPORTATION AND STORAGE IN THE CORVIDAE. *Commun. in Behavioral Biol.*, pt. A, 1: 277-297. 1968. [From Bird-Banding 40(1), 1969.] *WR 136: 84*
Emphasis is on the Eurasian nutcracker *(Nucifraga caryocatactes)*.

OTHER BIRDS

Abé, Manabu T. [ECOLOGICAL STUDIES ON *PASSER MONTANUS KAIBATOI* MUNSTERHJELM.] *Bull. Govt. Forest Expt. Sta.* (Tokyo, Japan) no. 220. p. 11-57, 12 figs. Mar. 1969. In Japanese with English summ. *WR 136: 84*
Breeding habits and growth of nestlings were studied.

Andersson, Gunnar, Rune Gerrell, Hans Kallander, and Torsten Larsson. ANTECKNINGAR OM DVÄRGSPARVENS *(EMBERIZA PUSILLA)* BIOTOPVAL. [NOTES ON THE HABITAT OF THE LITTLE BUNTING *(EMBERIZA PUSILLA* PALL.).] *Vår Fågelvärld* 27(2): 136-141, illus. 1968. [From Biol. Abstr. 50(11), 1969. In Swedish with English summ.] *WR 136: 84*

Appert, Otto. ZUR BRUTBIOLOGIE DER ERDRACKE *URATELORNIS CHIMAERA* ROTHSCHILD. [BREEDING BIOLOGY OF *URATELORNIS CHIMAERA* ROTHSCHILD.] *J. Ornithol.* 109(3): 264-275, illus. 1968. [From Biol. Abstr. 50(8), 1969. In German with French summ.] *WR 136: 84*

Ashmole, Myrtle J., and N. Philip Ashmole. NOTES ON THE BREEDING SEASON AND FOOD OF THE RED-FOOTED BOOBY *(SULA SULA)* ON OAHU, HAWAII (FISH, SQUID). *Ardea* 55(3/4): 265-267. 1967. [From Biol. Abstr. 50(8), 1969.] *WR 136: 84*

Barnett, Leland Bruce. SEASONAL CHANGES IN TEMPERATURE ACCLIMATIZATION OF THE HOUSE SPARROW, *PASSER DOMESTICUS*. *Ph.D. thesis, Univ. Ill.* 57 p. 1968. [From Dissertation Abstr. 29(12B, pt. 1), 1969.] *WR 136: 84*

Berger, Andrew J., C. Robert Eddinger, and Sheila C. Frings. THE NEST AND EGGS OF THE ANIANIAU. *Auk* 86(2): 183-187, 2 figs. + 1 pl. Apr. 1969. *WR 136: 84*
[Univ. Hawaii, Honolulu.] Description and photograph of the nest and eggs of *Lozops parva*.--Courtesy/ Paul A. Stewart.

Blake, Charles H. NOTES ON THE INDIGO BUNTING. *Bird-Banding* 40(2): 133-139. Apr. 1969. *WR 136: 84*
[Hillsborough, N.C.] Survival, migration data, sex ratio, molt, and weights of the buntings are compiled from 590 banded birds and 25 returns.--Courtesy/ Paul A. Stewart.

Bock, Carl Elliott. THE ECOLOGY AND BEHAVIOR OF THE LEWIS WOODPECKER. *Ph.D. thesis, Univ. Calif.* (Berkeley). 237 p. 1968. [From Dissertation Abstr. 29 (12B, pt. 1), 1969.] *WR 136: 84*

Bondarevskaya, E. F. [ECOLOGY OF THE HOUSE SPARROW *(PASSER DOMESTICUS)* UNDER CITY CONDITIONS.] *Vestnik Zool.* 2(5): 81-82. 1968. [From Biol. Abstr. 50(11), 1969. In Russian with English summ.] *WR 136: 84*
[Poltava Pedagog. Inst., Poltava, USSR.]

Brun, Einar. HEKKING AV HAVSULE, *SULA BASSANA*, I NORD-NORGE. [BREEDING OF GANNET, *SULA BASSANA*, IN NORTH NORWAY.] *Sterna* 7(8): 376-385, illus. 1967. [From Biol. Abstr. 50(12), 1969. In Norwegian with English summ.] *WR 136: 84*
[Tromso Mus., Tromso, Norway.]

Chiba, Shinji. [ANALYSIS OF STOMACH CONTENTS OF *NUCIFRAGA CARYOCATACTES* AND *APUS PACIFICUS* OF JAPAN.] *Misc. Repts. Yamashina's Inst. Ornithol. Zool.* 5(3): 287-297, illus. 1968. [From Biol. Abstr. 50(14), 1969. In Japanese with English summ.] *WR 136: 85*

Elliott, Bruce G. LIFE HISTORY OF THE RED WARBLER. *Wilson Bull.* 81(2): 184-195. June 1969. *WR 136: 85*
[1213 E. Spring St., Tucson, Ariz.] Voice, territory, courtship, nest building, incubation, clutch size, nestlings, and fledglings of *Ergaticus ruber* are discussed.--Courtesy/ Paul A. Stewart.

Fu, Tung-Shen, and P. Chen. [THE DISTRIBUTION AND BREEDING HABITS OF *EMBERIZA JANKOWSKII.*] *Acta Zool. Sinica* 18(2): 195-198. 1966. [From Biol. Abstr. 50 (2), 1969. In Chinese with English summ.] *WR 136: 85*

Gavrilov, E. I., and A. F. Kovshar. [ON THE BIOLOGY OF THE LAPIDARY ROSEFINCH *(PYRRHOSPIZA PUNICEA* HODGS.).] *Trudy Inst. Zool. Akad. Nauk Kazakh. SSR* 29: 41-49. 1968. [From Bird-Banding 40(2), 1969. In Russian.] *WR 136: 85*

Haneda, Kenzo, and Takehiko Ichikawa. [LIFE HISTORY OF THE EASTERN GRAY WAGTAIL *(MOTACILLA CINEREA CASPICA)*: II. BREEDING SEASON (2) SHARE OF MALE AND FEMALE IN BREEDING SEASON, TERRITORY, FAMILY LIFE, AND REPRODUCTIVE RATE.] *Japanese J. Ecol.* 17(5): 182-189, illus. 1967. [From Biol. Abstr. 50(2), 1969. In Japanese with English summ.] *WR 136: 85*
[Shinshu Univ., Nagano, Japan.]

Holcomb, Larry C. BREEDING BIOLOGY OF THE AMERICAN GOLDFINCH IN OHIO. *Bird-Banding* 40(1): 26-44. Jan. 1969. *WR 136: 85*
[Creighton Univ., Omaha, Nebr.] Nest building, nest materials, placement of nests, nest size, egg laying, nest parasitism, clutch size, egg size, incubation period, and nesting success are discussed.--Courtesy/ Paul A. Stewart.

Keil, Werner. BEITRÄGE ZUR NESTLINGSENTWICKLUNG VON GARTENBAUMLÄUFER UND GARTENROTSCHWANZ. [CONTRIBUTIONS TO DEVELOPMENT OF THE NESTLINGS OF THE SHORT-TOED TREE CREEPER *(CERTHIA BRACHYDACTYLA)* AND THE REDSTART *(PHOENICURUS PHOENICURUS).*] *Natur & Heimat* 29(1): 19-24, 2 figs. 1969. In German. *WR 136: 85*
[Steinauer Strasse 44, Frankfurt/M.-Fechenheim, Germany.]

Kenyon, Karl W., and Eugene Kridler. LAYSAN ALBATROSSES SWALLOW INDIGESTIBLE MATTER. *Auk* 86(2): 339-343, 1 fig. Apr. 1969. *WR 136: 85*
[Sand Point Naval Air Sta., Seattle, Wash.] The number and weights of indigestible items found in 100 carcasses of Laysan albatrosses *(Diomedea immutabilis)* are tabulated. Pumice and plastic objects were the chief items.--Courtesy/ Paul A. Stewart.

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Competition with other species and squirrels for breeding places.

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Williamson, Kenneth. HABITAT PREFERENCES OF THE WREN ON ENGLISH FARMLAND. *Bird Study* 16(1): 53-59. Mar. 1969. *WR 136: 87*
[British Trust Ornithol., Beech Grove, Tring, Hertfordshire, England.] Following a reduction of population in 1963, breeding birds established territories in wooded haunts or along rivers and streams. As the population increased, a greater proportion were established in gardens and orchards, and finally, unstable territories were occupied along hedgerows.--From summ.

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[Yale Univ., New Haven, Conn.]

Bayless, Laurence E. ECOLOGICAL DIVERGENCE AND DISTRIBUTION OF SYMPATRIC *ACRIS* POPULATIONS (ANURA: HYLIDAE). *Herpetologica* 25(3): 181-187. 16 Sept. 1969. *WR 136: 87*
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habitat separation was demonstrated. *Acris crepitans* inhabited the shrub-dominated pond margins, while *A. gryllus* tended to avoid them; *A. crepitans* did not occur in a nearby meadow with temporary pools, while *A. gryllus* bred successfully in these pools.--From abstr.

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[South African Mus., Cape town, South Africa.]

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Burghardt, Gordon M., and Eckhard H. Hess. FACTORS INFLUENCING THE CHEMICAL RELEASE OF PREY ATTACK IN NEWBORN SNAKES *(THAMNOPHIS SIRTALIS, T. RADIX, T. BUTLERI)*. *J. Comp. Physiol. Psychol.* 66(2): 289-295, illus. 1968. [From Biol. Abstr. 50(5), 1969.] *WR 136: 88*
[Univ. Tenn., Knoxville.] Newborn *Thamnophis sirtalis, T. radix,* and *T. butleri* reacted to water extracts of normal prey without benefit of visual or olfactory cues.

Bustard, H. Robert. THE ECOLOGY OF THE AUSTRALIAN GECKO, *GEHYRA VARIEGATA*, IN NORTHERN NEW SOUTH WALES. *J. Zool.* 154(1): 113-138, illus. 1968. [From Biol. Abstr. 50(6), 1969.] *WR 136: 88*
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Bustard, H. Robert. THE MICRO-ENVIRONMENT OF A NATURAL LIZARD NEST. *Copeia* 1969(3): 536-539, 1 fig. 29 Aug. 1969. *WR 136: 89*
[Australian Natl. Univ., Canberra, Australia.] Abstract: Eggs of the geckos *Gehyra variegata* and *Heteronotia binoei* are laid on top of the soil below cover. Nests are virtually restricted to the most stable micro-environment in the habitat which occurs below thick boards lying flat on the ground. Diel temperature fluctuations of nests approximate 7°C compared to 20°C in the gekkonid homesites and 22°C in a standard Stevenson screen.

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[East Central State Coll., Ada, Okla.] Sixty-three species.

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[Inst. Physiol. Zool., Univ., Mainz, Germany.]

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[Inst. Physiol. Zool., Univ., Mainz, Germany.]

Fomina, M. I. [FEEDING HABITS OF *VIPERA URSINI RENARDI* CHRIST.] *Zool. Zhur.* 47(8): 1257-1259. 1968. [From Biol. Abstr. 50(10), 1969. In Russian with English summ.] *WR 136: 89*
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[P.O. Box A, Aiken, S.C.] Significant differences were found in body length, body weight, and clutch size of painted turtles *(Chrysemys picta)* from three different habitats.--Courtesy/ Paul A. Stewart.

Goin, Coleman J. BEHAVIOR OF IGUANA DURING RAIN STORMS. *Quart. J. Fla. Acad. Sci.* 30(2): 119-120. 1967. [From Biol. Abstr. 50(3), 1969.] *WR 136: 90*
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[P.O. Box 855, Huntsville, Texas.] In several respects, these three specimens resemble to varying degrees others from more southern areas in Mexico.--From abstr.

Heatwole, Harold, Tsu-Hui Lin, Edwin Villalón, Angelica Muñiz, and Alice Matta. SOME ASPECTS OF THE THERMAL ECOLOGY OF PUERTO RICAN ANOLINE LIZARDS. *J. Herpetol.* 3(1-2): 65-77, 6 figs. 10 July 1969. *WR 136: 90*
[Univ. New England, Armidale, Australia.] Despite occupancy of nearly identical geographic ranges and similar thermal environments, *Anolis cristatellus* maintains slightly higher body temperatures than *A. stratulus*. Within a given species, tolerance to low temperature was dependent on body size. Interspecific differences were not attributable to size; species from high altitudes were more tolerant to cold than those from lower elevations. Lowland species were more tolerant of high temperatures than upland ones. Preferred environmental temperatures in a laboratory gradient were higher than mean T_B in the field. Differences in type of activity period account for many apparent differences in thermoregulatory ability among lizards.--From abstr.

Hirth, Harold F., and Arthur C. King. BODY TEMPERATURES OF SNAKES IN DIFFERENT SEASONS. *J. Herpetol.* 3(1-2): 101-102, 1 fig. 10 July 1969. *WR 136: 90*
[Univ. Utah, Salt Lake City.] *"Artemisia tridentata, Crotalus viridis lotosus,* and *Coluber constrictor mormon."*

Hirth, Harold F., Robert C. Pendleton, Arthur C. King, and Thomas R. Downard. DISPERSAL OF SNAKES FROM A HIBERNACULUM IN NORTHWESTERN UTAH. *Ecology* 50(2): 332-339, 5 figs. Early Spring 1969. *WR 136: 91*
[Univ. Utah, Salt Lake City.] As they emerged from their communal hibernaculum, Mormon racers *(Coluber constrictor mormon)*, Great Basin rattlesnakes *(Crotalus viridis lutosus)*, and striped whipsnakes *(Masticophis t. taeniatus)* were captured and marked with Ta^{182}. Mormon racers remained closest to the hibernaculum, while whipsnakes traveled the farthest.--Courtesy/ Paul A. Stewart.

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[Harvard Med. School, Boston, Mass.] *"Hyla squirella* and *H. cinerea."*

Jackson, Crawford G., Jr., and Marguerite M. Jackson. THE EGG AND HATCHLING OF THE SUWANNEE TERRAPIN. *Quart. J. Fla. Acad. Sci.* 31(3): 199-204, 2 figs. Sept. 1968. *WR 136: 91*
[Miss. State Coll. Women, Columbus.] The post-hatching pattern of *Pseudemys concinna suwanniensis* begins to fade from the carapace laminae after about 3 days. At about 10 to 12 days, the typical juvenile reticulum is prominent, the carapace ground color has become greenish, and the "C"-shaped marking of the second lateral lamina is discernible.

Jackson, Thomas, and Richard L. Beaudoin. COMPARISON OF THE PARASITE FAUNA IN TWO METAMORPHIC STAGES OF THE RED-SPOTTED NEWT *NOTOPTHALMUS VIRIDESCENS VIRIDESCENS. Pa. Acad. Sci. Proc.* 40(2): 70-75. 1967. [From Biol. Abstr. 50 (1), 1969.] *WR 136: 91*
[Penn Hall Junior Coll., Chambersburg, Pa.]

Johnson, Clifford Ray. HERPETOFAUNA OF OKINAWA, RYU KYU ISLANDS. *Herpetologica* 25(3): 206-210. 16 Sept. 1969. *WR 136: 91*
[Univ. Queensland, St. Lucia, Brisbane, Australia.] Annotated list of 21 spp.

Johnson, Clifford Ray. WATER ABSORPTION RESPONSE OF SOME AUSTRALIAN ANURANS. *Herpetologica* 25(3): 171-172. 16 Sept. 1969. *WR 136: 91*
[Univ. Queensland, St. Lucia, Brisbane, Australia.]

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[Miss. State Univ., State College.]

Kirkpatrick, T. H. MAMMALS, BIRDS AND REPTILES OF THE WARWICK DISTRICT, QUEENSLAND. III. REPTILES AND GENERAL CONCLUSIONS. *Queensland J. Agr. Animal Sci.* 25(4): 235-241. 1968. [From Biol. Abstr. 50(8), 1969.] *WR 136: 91*
[Res. Sta., Hermitage, Warwick, Queensland, Australia.]

Korotkov, Yu. M. [ABUNDANCE OF HORSEFIELDS' TERRAPIN *(TESTUDO HORSEFIELDI* GRAY.) IN BADKHYZ.] *Zool. Zhur.* 46(12): 1863-1864. 1967. [From Biol. Abstr. 50(3), 1969. In Russian with English summ.] *WR 136: 91*

Lee, David S. A FOOD STUDY OF THE SALAMANDER *HAIDEOTRITON WALLACEI* CARR. *Herpetologica* 25(3): 175-177. 16 Sept. 1969. *WR 136: 91*
[Md. Nat. Hist. Soc., 2643 North Charles, Baltimore.] Abstract: A sample of 32 *Haideotriton wallacei* from a cave in Jackson County, Florida contained 91 food items, primarily small troglobitic crustaceans. Small salamanders and those from drying pools contained more food items than did larger salamanders or those from deeper bodies of water.

Lee, David S. NOTES ON THE FEEDING BEHAVIOR OF CAVE-DWELLING BULLFROGS. *Herpetologica* 25(3): 211-212. 16 Sept. 1969. *WR 136: 92*
[Md. Nat. Hist. Soc., 2643 North Charles, Baltimore.]

McDiarmid, Roy W. VARIATION, DISTRIBUTION AND SYSTEMATIC STATUS OF THE BLACK-HEADED SNAKE *TANTILLA YAQUIA* SMITH. *Bull. Southern Calif. Acad. Sci.* 67(3): 159-177, illus. 1968. [From Biol. Abstr. 50(5), 1969.] *WR 136: 92*
[Univ. Chicago, Chicago, Ill.]

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The Department works to assure the wisest choice in managing all our resources so that each shall make its full contribution to a better United States now and in the future.

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